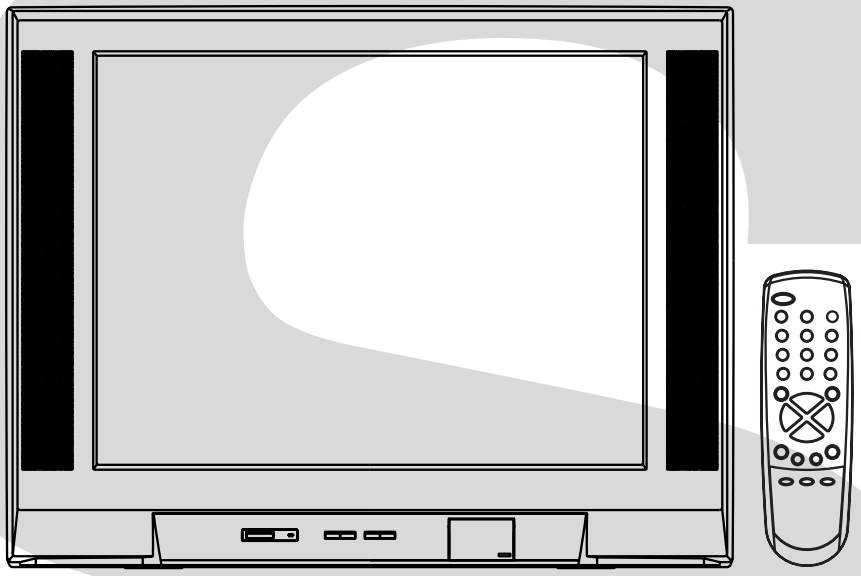
TOSHIBA

FILE NO. 050-200702GR
(MFR'S VERSION A)

SERVICE MANUAL

COLOR TELEVISION

27D47



The above model is classified as a green product (*1), as indicated by the underlined serial number. This Service Manual describes replacement parts for the green product. When repairing this green product, use the part(s) described in this manual and lead-free solder (*2).

For (*1) and (*2), see the next page.

DOCUMENT CREATED IN JAPAN, February, 2007 GREEN

(*1) GREEN PRODUCT PROCUREMENT

The EC is actively promoting the WEEE & RoHS Directives that define standards for recycling and reuse of Waste Electrical and Electronic Equipment and for the Restriction of the use of certain Hazardous Substances. From July 1, 2006, the RoHS Directive will prohibit any marketing of new products containing the restricted substances.

Increasing attention is given to issues related to the global environmental. Toshiba Corporation recognizes environmental protection as a key management tasks, and is doing its utmost to enhance and improve the quality and scope of its environmental activities. In line with this, Toshiba proactively promotes Green Procurement, and seeks to purchase and use products, parts and materials that have low environmental impacts.

Green procurement of parts is not only confined to manufacture. The same green parts used in manufacture must also be used as replacement parts.

(*2) LEAD-FREE SOLDER

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repair of this product.

WARNING

This product is manufactured using lead free solder.

DO NOT USE LEAD BASED SOLDER TO REPAIR THIS PRODUCT !

The melting temperature of lead-free solder is higher than that of leaded solder by 86°F to 104°F (30°C to 40°C). Use of a soldering iron designed for lead-based solders to repair product made with lead-free solder may result in damage to the component and or PCB being soldered. Great care should be made to ensure high-quality soldering when servicing this product — especially when soldering large components, through-hole pins, and on PCBs — as the level of heat required to melt lead-free solder is high.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

IMPORTANT

When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Befor applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

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GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size	27 inch / 676.0mmV
			CRT Type	Normal
			Magnetic Field BV/BH	+0.45G/0.18G
		Color System		NTSC
		Display Capability		480i
		Speaker		2Speaker
			Position	Front Side
			Size	2.0 x 3.5 Inch
			Impedance	8 ohm
		Sound Output	MAX	1.0 + 1.0 W
			10%(Typical)	- W
		NTSC3.58+4.43 /PAL60Hz		No
G-2	**Tuning System**	Broadcasting System	Analog	US System M
			Digital	ATSC(8VSB)/QAM
		Tuner and	System	1Tuner
		Receive CH	Destination	USA(W/ CABLE)
		CH Coverage		2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84
		Intermediate	Digital	44.00MHz
		Frequency	Analog Picture(FP)	45.75MHz
			Sound(FS)	41.25MHz
			FP-FS	4.50MHz
		Preset CH		No
		Stereo/Dual TV Sound		Yes
		Tuner Sound Muting		Yes
G-3	**Power**	Power Source	AC	120V AC 60Hz
			DC	
		Power Consumption	at AC	
				110 W at AC 120 V 60 Hz
			Stand by (at AC)	3 W at AC 120 V 60 Hz
			Per Year	-- kWh/Year
		Energy Star		No
		Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector(Micro Fuse)	No
G-4	**Regulation**		Safety	UL(UL1492)
			Radiation	FCC
			X-Radiation	DHHS
G-5	**Temperature**		Operation	+5°C ~ +40°C
			Storage	-20°C ~ +60°C
G-6	**Operating Humidity**			Less than 80% RH
G-7	**OSD Language**			English French Spanish
G-8	**Clock and Timer**	Clock		Yes
		Clock Display		12H
		Calendar		Yes
		Sleep Timer	Max Time	120 Min
			Step	10 Min
		On Timer/Off Timer	Program	No
		Game Timer		No
		Wake Up Timer		No
		Timer Back-up (at Power Off Mode)	more than	-- Min Sec

GENERAL SPECIFICATIONS

G-9	**Remote Control**	Unit		RC-NH
		Glow in Dark Remocon		No
		Format		Toshiba
		Remocon Format		Toshiba
		Custom Code		40-BFh
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		26 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			-	Yes
			CH Up/MENU Cursor Up	Yes
			CH Down/MENU Cursor Down	Yes
			Volume Up/MENU Cursor Right	Yes
			Volume Down/MENU Cursor Left	Yes
			Closed Caption	No
			CH1/CH2	No
			TV/Video(Input Select)	Yes
			CH RTN(Quick View)	Yes
			Sleep	Yes
			Display(Recall)	Yes
			Reset	No
			Menu/Enter	Yes
			Menu	No
			Enter	No
			Mute	Yes
			Exit	Yes
			Audio Select	Yes
			Favorite CH Up	No
			Favorite CH Down	No
			Picture Size	Yes
			Analog/Digital	Yes

GENERAL SPECIFICATIONS

G-10	**Features**	Picture	Brightness, Contrast, Color, Tint, Sharpness		Yes
			Mode (Picture preference)		No
			Color Temperature		No
		Audio	SAP		Yes
			Tone Control (Bass, Treble, Balance)		No
			Stable Sound		No
			Surround		No
			BBE		No
			SRS WOW(SRS 3D/Focus/Tru Bass)		No
			Variable Audio Out		No
		Tuning	TV/CABLE		Yes
			CH Program		Yes
			Add/ Delete		Yes
		Label	CH Label		No
			Video Label		No
		Favorite CH			No
		Lock	Hotel Lock		No
			Channel Lock		No
			Video Lock		No
			Panel Lock		No
		Auto Shut Off			Yes
		Auto Setup			Yes
		Power On Memory			Yes
		V-Chip			Yes
			Type		USA, ORION Type
		RRT			Yes
		Image Tilt			No
		SVM Circuit			No
		Comb Filter			Yes 3 -D
		Cable Clear			No
		Cinema Mode			No
		Display Format			No
		Aspect			No
		Closed Caption			Yes
		CC Advance			Yes
		Signal Meter			Yes
		Audio Language			Yes
		Picture Size			Yes
		Zoom			Yes
		Picture Scroll			No
		FBT Leak Test Protect			Yes
		POD (Point Of Deployment)			No
		TV Guide (EPG)			No
		Digital Out	Dolby Digital		No
			MPEG		No
			PCM		No
			DTS		No
		HDMI Input			No
		Component Input			Yes
			720×480i (4:3)		Yes (60Hz)
			720×480i (16:9)		Yes (60Hz)
			720×480p (4:3)		No
			720×480p (16:9)		No
			720×576i (4:3)		No
			720×576i (16:9)		No
			720×576p (4:3)		No
			720×576p (16:9)		No
			1280×720p		No
			1920×1080i		No

GENERAL SPECIFICATIONS

G-11	**Accessories**	Owner's Manual		Language	English / Spanish
				W/ Warranty	Yes
		Remote Control Unit			Yes
		Rod Antenna			No
				Poles	
				Terminal	
		Loop Antenna			No
				Terminal	
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			No
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Station List			No
		Important Safety Instruction			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery			Yes
				UM size x pcs	UM-4 x 2 pcs
				OEM Brand	No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card (NDL Card)			Yes
		PTB Sheet			No
		ESP Card			No
		300 ohm to 75 ohm Antenna Adapter			No
		Information Sheet(for HDMI)			No
		Information Sheet(RETURN)			No
		Information Sheet(Channel)			No
		Information Sheet(RRT)			No
G-12	**Interface**	Switch	Front	Power	Yes
				Channel Up/Menu Up	Yes
				Channel Down/Menu Down	Yes
				Volume Up/Menu Right	Yes
				Volume Down/Menu Left	Yes
				Menu=Volume Up+Volume Down	Yes
		Indicator		Power	Yes(RED)
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input = VIDEO2	RCA
				Audio Input = VIDEO2	RCA x 2 (L/MONO,R)
				S Input	No
				Other Terminal	No
			Rear	Video Input(Rear1) = VIDEO1	RCA
				Video Input(Rear2) = VIDEO3	No
				S Input = VIDEO1	Yes
				S Input = VIDEO3	No
				Audio Input(Rear1) = VIDEO1	RCA x 2 (L/MONO,R)
				Audio Input(Rear2) = VIDEO3/Component	No
				Video Output	No
				Audio Output	RCA x 2(L,R)
				Component Input1(Color Stream)	RCA x 3
				Component Input2(Color Stream)	No
				HDMI Input1(w/ Analog Audio L/R)	No
				HDMI Input2(w/ Analog Audio L/R)	No
				Digital Audio Out	No
				Cable Card Slot	No
				IR Blaster	No
				VHF/UHF Antenna Input	F Type
				AC Outlet	No

GENERAL SPECIFICATIONS

G-13	**Set Size**		Approx. W x D x H (mm)	740 x 491.5 x 571.5
G-14	**Weight**		Net (Approx.)	37.0 kg (81.6lbs)
			Gross (Approx.)	41.0 kg (90.4lbs)
G-15	**Carton**	Master Carton		No
			Content	---- Sets
			Material	-- /--
			Dimensions W x D x H(mm)	-- x -- x --
			Description of Origin	No
		Gift Box	Material	Double/Brown
			Dimensions W x D x H(mm)	850 x 575 x 665
			Description of Origin	Yes
		Drop Test		Natural Dropping At 1 Corner / 2 Edges / 4 Surfaces
			Height (cm)	60 (ORION SPEC:31)
		Container Stuffing		168 Sets/40' container
G-16	**Material**	Cabinet	Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0 DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	Yes
G-17	**Environment**	Environmental standard requirement		Green procurement of Toshiba
		Pb- Free		Phase3(PHASE3A)
			Measures for Whisker	Yes

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

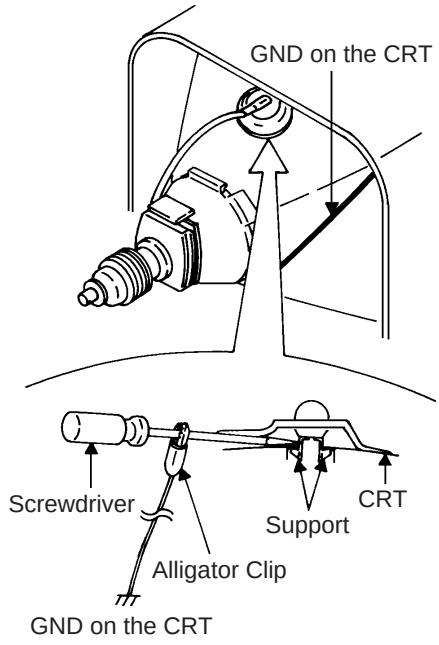


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

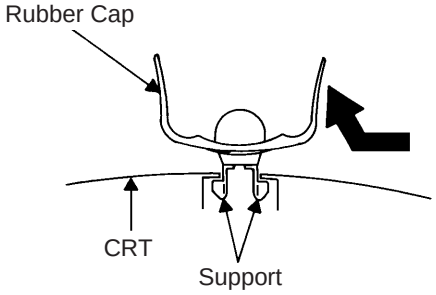


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

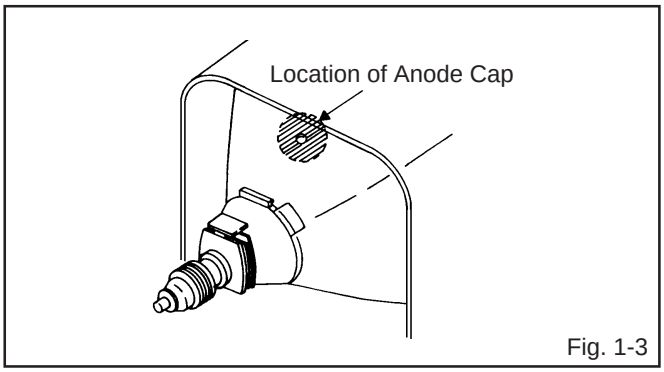


Fig. 1-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**

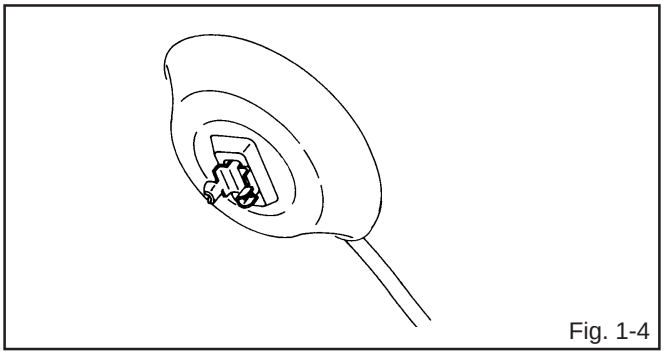


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5**.

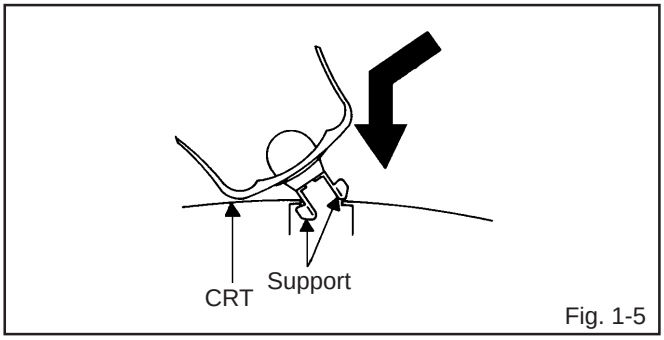


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

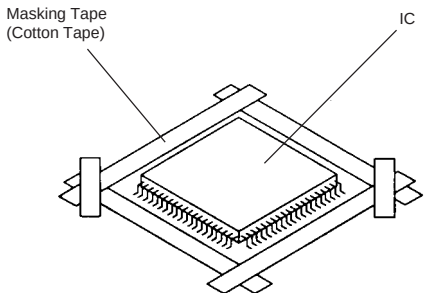


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

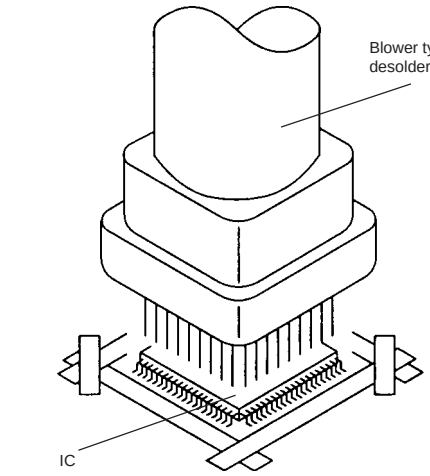


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

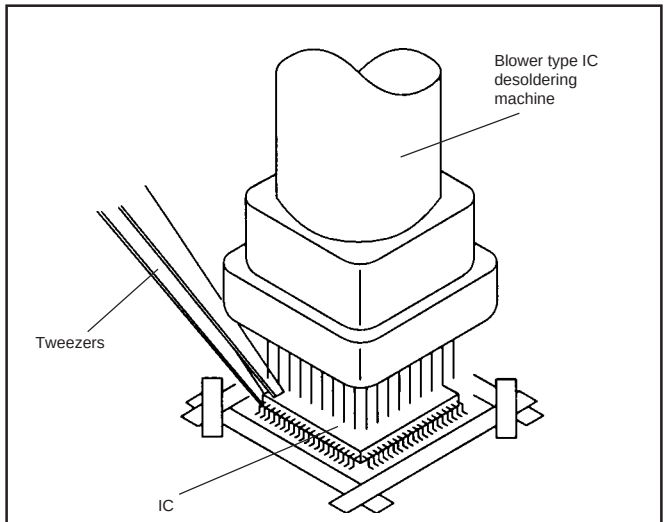


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

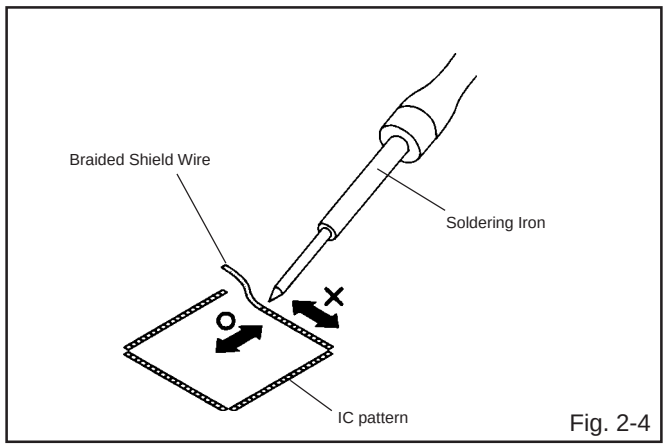


Fig. 2-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

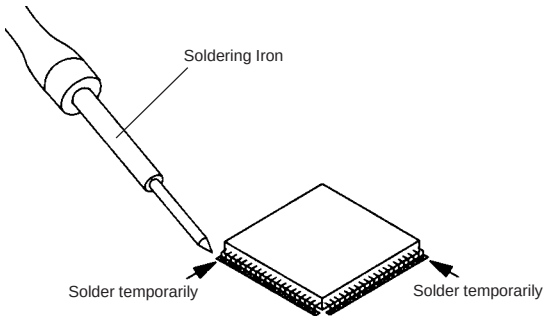


Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

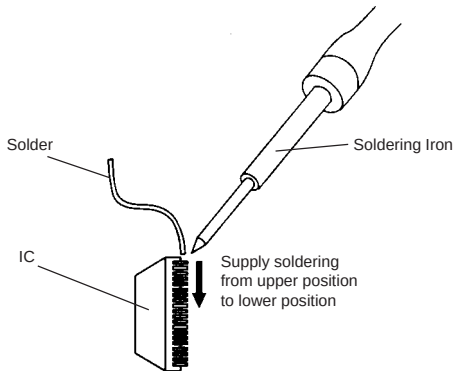


Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

   NOTE

   Do not absorb the solder to excess.

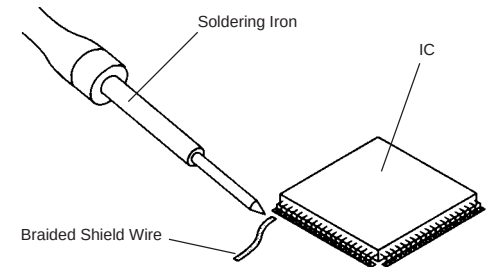


Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 2-8.)**

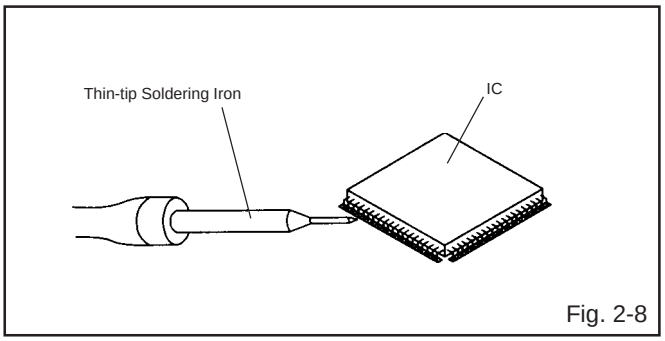


Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than a standard time in the appropriate condition. (See below chart.)
In case of the main unit and remote control, press the remote control buttons first, then press the main unit buttons.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
POWER ON	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
POWER ON	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory TV data. NOTE: If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
POWER ON	VOL. DOWN (Minimum)	6	2 sec.	Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
POWER ON	VOL. DOWN (Minimum)	8	2 sec.	Check of the SUM DATA, MICON VERSION, POWER ON total hours and Digital TV MICON Firmware on the screen. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
POWER ON	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

WHEN REPLACING EEPROM (MEMORY) IC

CONFIRMATION OF CHECK SUM, POWER ON TOTAL HOURS, MICON VERSION AND DIGITAL TV MICON FIRMWARE VERSION

Initial total of MEMORY IC, POWER ON total hours, MICON VERSION and Digital TV MICON Firmware VERSION can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".
Please refer to "CONFIRMATION OF INITIAL DATA" when SUM DATA is not corresponding.

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(8)** on the remote control for more than 2 seconds.
4. After the confirmation of each check sum, POWER ON total hours, Digital TV MICON Firmware and MICON VERSION, turn off the power.

NOTE: The each item value might be different according to each set.

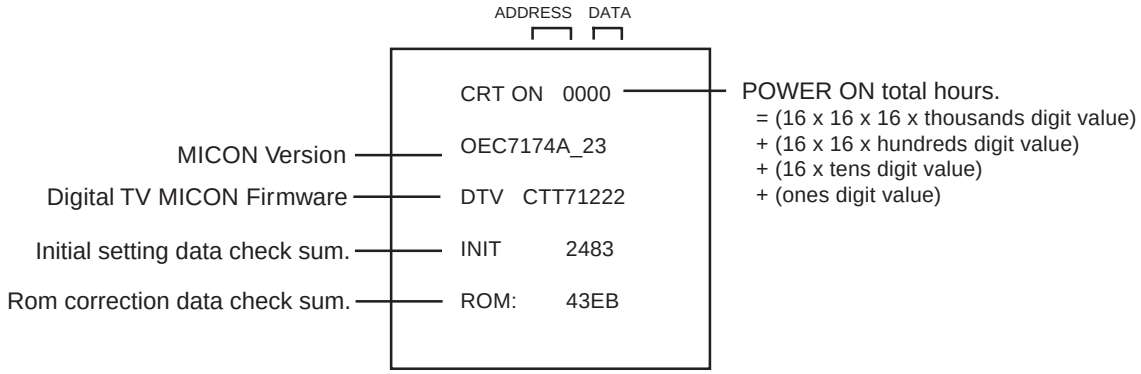


FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	43	00	00	20	09	B3	24	0D	4B	80	00	A0	FA	00	00	00
10	00	00	00	65	4E	34	10	A1	00	00	00	00	60	00	10	8C
20	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	08
30	88	00	00	00	00	09	72	05	05	00	00	00	87	03	C8	22
40	02	33	00	00	04	23	2D	20	00	40	20	40	40	40	00	00
50	00	64	00	00	00	00	00	00	0A	45	A0	00	FF	01	00	00
60	00	88	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
80	00	00	00	00	00	00	00	00	00	03	00	00	00	00	00	00
90	00	00	00	00	00	00	00	00	00	00	00	05	9D	01	00	84
A0	04	11	00	00	00	05	00	01	00	00	00	05	12	13	05	82
B0	01	00	00	00	00	04	00	04	00	02	00	00	00	00	00	00
C0	08	24	2F	33	37	38	39	3A	3B	3C	3C	3D	3F	40	40	41
D0	42	44	45	46	47	48	49	4A	4B	4C	4C	4D	4E	4F	50	50
E0	51	52	53	53	54	54	55	55	57	58	5A	5B	5C	5D	5E	5F
F0	61	62	64	66	68	6E	73	78	7D	82	86	8A	8E	8E	8F	8F

Table 1

CONFIRMATION OF INITIAL DATA

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 2.
3. ADDRESS is now selected and should "blink". Using the CH. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press VOL.+/- button to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using CH. UP/DOWN button until required DATA value has been selected.
6. Pressing VOL.+/- button will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

After the data input, set to the initializing of shipping.

9. Turn on the Power.
10. Set the VOLUME to minimum.
11. Press both VOL. DOWN button on the set and Channel button **(1)** on the remote control for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

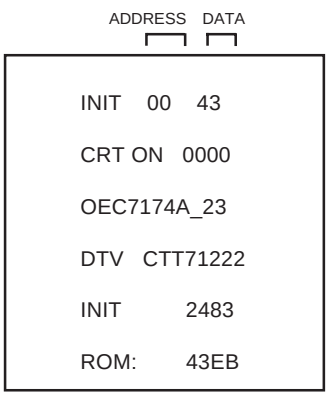
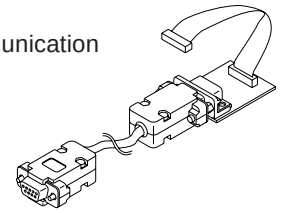
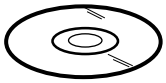
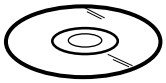


FIG. 2

SERVICING FIXTURES AND TOOLS

JG205 Serial Communication Change JIG 	JG206 Flash UP-Date Soft Disc 	JG176 2007 SD DTV Rom Disc 

Ref. No.	Part No.	Parts Name	Remarks
JG205	APJG205000	Serial Communication Change JIG	Connect the set to personal computer
JG206	APJG206000	Flash UP-Date Soft Disc	Up-Date of the Firmware
JG176	APJG176125	2007 SD DTV Rom Disc	Up-Date of the Firmware

RE-WRITE FOR DIGITAL SOFT FIRMWARE

1. Confirm that the AC cord is plugged out.
2. Using the Serial Communication Change JIG **(JG205)**, connect the set to personal computer. **(Refer to Fig. 1)**
   NOTE: It is possible to write only with the personal computer of WINDOWS.

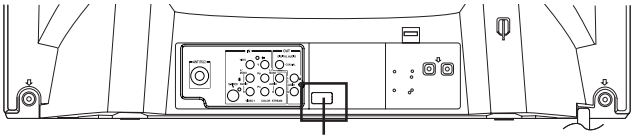


Fig. 1

3. Using the Flash UP-Date Soft Disc **(JG206)** and 2007 SD DTV Rom Disc **(JG176)**, please Re-write the DIGITAL SOFT FIRMWARE.
   The operating manual for Re-writing is included in Flash UP-Date Soft Disc **(JG206)**.

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

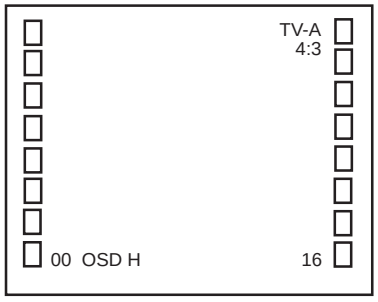


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.
4. To display the adjustment screen for TV-A, TV-D, AV and YUV mode, press the INPUT button on the remote control. Press the VOL.DOWN button on the set and the channel **(9)** on the remote control for more than 2 seconds.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	32	CONT.CENT
01	OSD C	33	CONT.MAX
02	CUT OFF	34	CONT.MIN
03	H.POSI	35	COL.CENT
04	H BLK L	36	COL.MAX
05	H BLK R	37	COL.MIN
06	V. SIZE	38	TINT CENT
07	V. POSI	39	SHARP.CENT
08	V. LIN	40	SHARP.MAX
09	VS CORR	41	SHARP.MIN
10	V COMP	42	SUB BIAS
11	R.BIAS	43	H.SIZE
12	G.BIAS	44	PARABOLA
13	B.BIAS	45	TRAPEZIUM
14	R.DRV	46	COR TOP
15	G.DRV	47	COR BTM
16	B.DRV	48	T.STE
29	BRI.CENT	49	X-RAY
30	BRI.MAX		
31	BRI.MIN		

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CONSTANT VOLTAGE

1. Place the set in AV MODE without signal.
2. Connect the digital voltmeter to the **TP003**.
3. Adjust the **VR502** until the digital voltmeter is 120 ± 0.5V.

2-2: CUT OFF

1. Place the set in Aging Test for more than 15 minutes.
2. Place the set in AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select “CUT OFF”.
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-3: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the adjustment control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "R.BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R.BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "R.DRIVE", "B.DRIVE", "G.BIAS" or "B.BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R.DRIVE, B.DRIVE, G.BIAS or B.BIAS.
8. Perform the above adjustments 6 and 7 until the white color is achieved.

2-4: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

ELECTRICAL ADJUSTMENTS

2-5: BRIGHT CENT

1. Receive the monoscope pattern. (RF Input)
2. Set the screen mode to FULL.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select "BRI. CENT".
5. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.
8. Receive the monoscope pattern.
9. Press the INPUT button on the remote control to set to the YUV mode.Then perform the above adjustments 2~5.

2-6: CONTRAST MAX

1. Receive an over 70dB color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT.MAX".
4. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "105".
5. Receive a broadcast and check if the picture is normal.
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT.MAX".
9. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "110".
10. Receive the monoscope pattern.
11. Press the INPUT button on the remote control to set to the YUV mode.
12. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "CONT.MAX".
13. Press the VOL.UP/DOWN button on the remote control to set the same step numbers as the AV mode.

2-7: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast color and tint to normal position.
3. Connect the oscilloscope to **TP024**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(38)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section A becomes as straight line. **(Refer to Fig. 2-1)**
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5. **(Refer to Fig. 2-1)**
8. Receive the monoscope pattern.
9. Press the INPUT button on the remote control to set to the YUV mode.Then perform the above adjustments 2~5.
10. Receive the monoscope pattern.
11. Press the INPUT button on the remote control to set to the DIGITAL mode.Then perform the above adjustments 2~5. **(Refer to Fig. 2-1)**

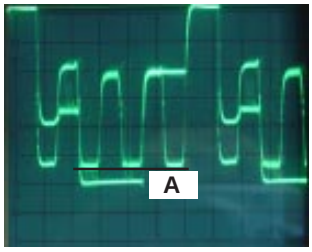


Fig. 2-1

2-8: COLOR CENT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP022**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(35)** on the remote control to select "COL.CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110 ± 10% of the white level. **(Refer to Fig. 2-2)**
7. Receive the video color bar pattern. (Audio Video Input)
8. Press the INPUT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6. **(Refer to Fig. 2-2)**
9. Receive the video color bar pattern.
10. Press the INPUT button on the remote control to set to the YUV mode.Then perform the above adjustments 2~6.
11. Receive the video color bar pattern.
12. Press the INPUT button on the remote control to set to the DIGITAL mode.Then perform the above adjustments 2~6. **(Refer to Fig. 2-2)**

ELECTRICAL ADJUSTMENTS

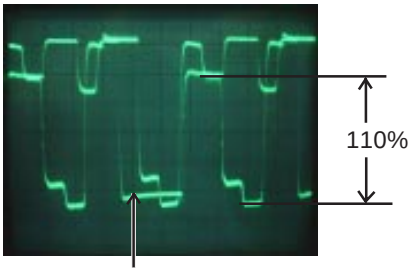


Fig. 2-2

2-9: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select “H.POSI”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-10: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(43)** on the remote control to select "H.SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on the right and left becomes 10± 3%.

2-11: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness, contrast, to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "V.LIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-12: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.
   (Refer to Fig. 2-3)

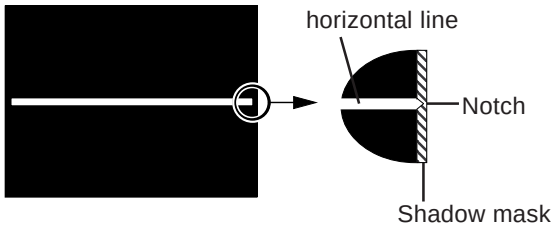


Fig. 2-3

2-13: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select “V. SIZE”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes 9 ± 2%.

2-14: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(45)** on the remote control to select “TRAPEZIUM”.
4. Press the VOL. UP/DOWN button on the remote control until the both ends right and left vertical lines of the 1th length lines screen become parallel.

2-15: PALABOLA CORR

1. Receive the chosshatch pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(44)** on the remote control to select “PALABOLA”.
4. Press the VOL. UP/DOWN button on the remote control, so that the line becomes straight from the outside of the right and left.

ELECTRICAL ADJUSTMENTS

2-16: COR TOP/BTM

1. Receive the crosshatch signal from the Pattern Generator.
2. Set the screen mode to FULL.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(46)** on the remote control to select “COR. TOP”.
5. Press the VOL. UP/DOWN button on the remote control until the both ends vertical lines become straight.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(47)** on the remote control to select “COR. BTM”.
7. Press the VOL. UP/DOWN button on the remote control until the both ends vertical lines of the screen become parallel.

2-17: OSD POSITION

1. Receive the monoscope pattern from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(00)** on the remote control to select "OSD H".
4. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

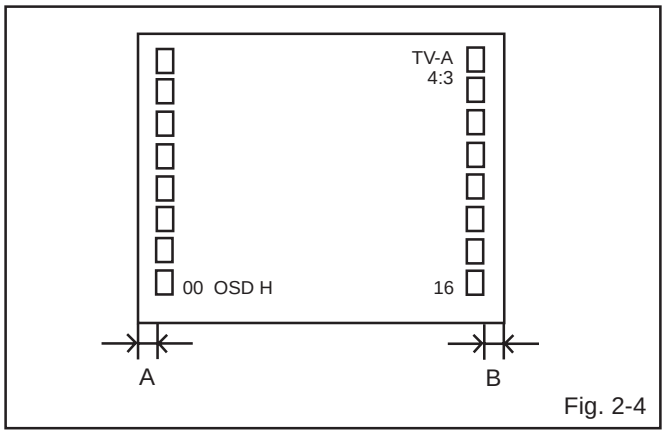


Fig. 2-4

2-18: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of each of the adjustment item is set correctly referring below.

NO.	FUNCTION	ANALOG TV-A	DIGITAL TV-D	VIDEO1, VIDEO2 AV	Colorstream YUV
01	OSD C	03	03	03	03
04	H BLK L	05	05	05	05
05	H BLK R	02	02	02	02
07	V.POSI	01	01	01	01
09	VS CORR	14	14	14	14
10	V COMP	03	03	03	03
30	BRI.MAX	90	90	90	90
31	BRI.MIN	00	00	00	00
32	CONT.CENT	55	50	55	55
33	CONT.MIN	30	30	30	30
36	COL.MAX	127	127	127	127
37	COL.MIN	00	00	00	00
39	SHARP.CENT	25	25	25	25
40	SHARP.MAX	63	63	63	63
41	SHARP.MIN	05	05	05	05
42	SUB BIAS	00	00	00	00
48	T.STE	00	00	00	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

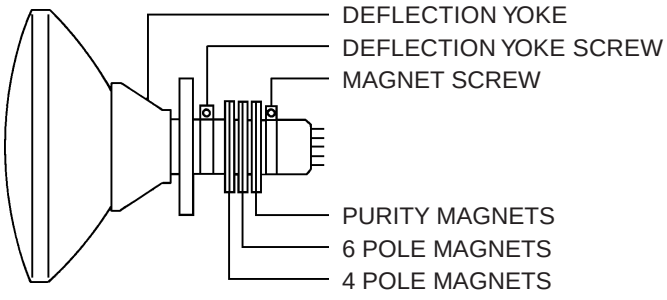


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

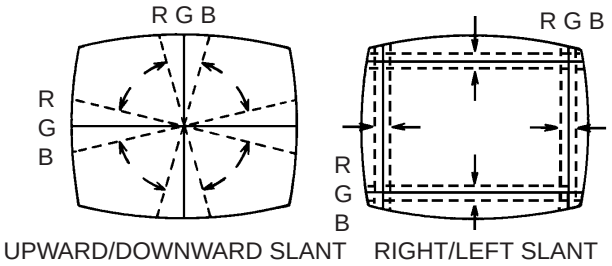


Fig. 3-2-a

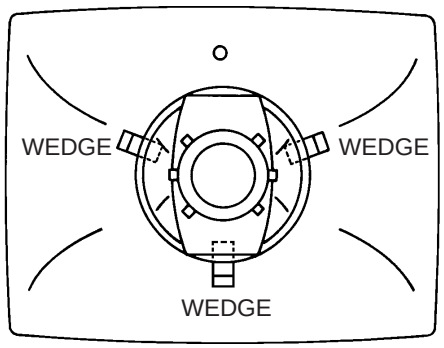
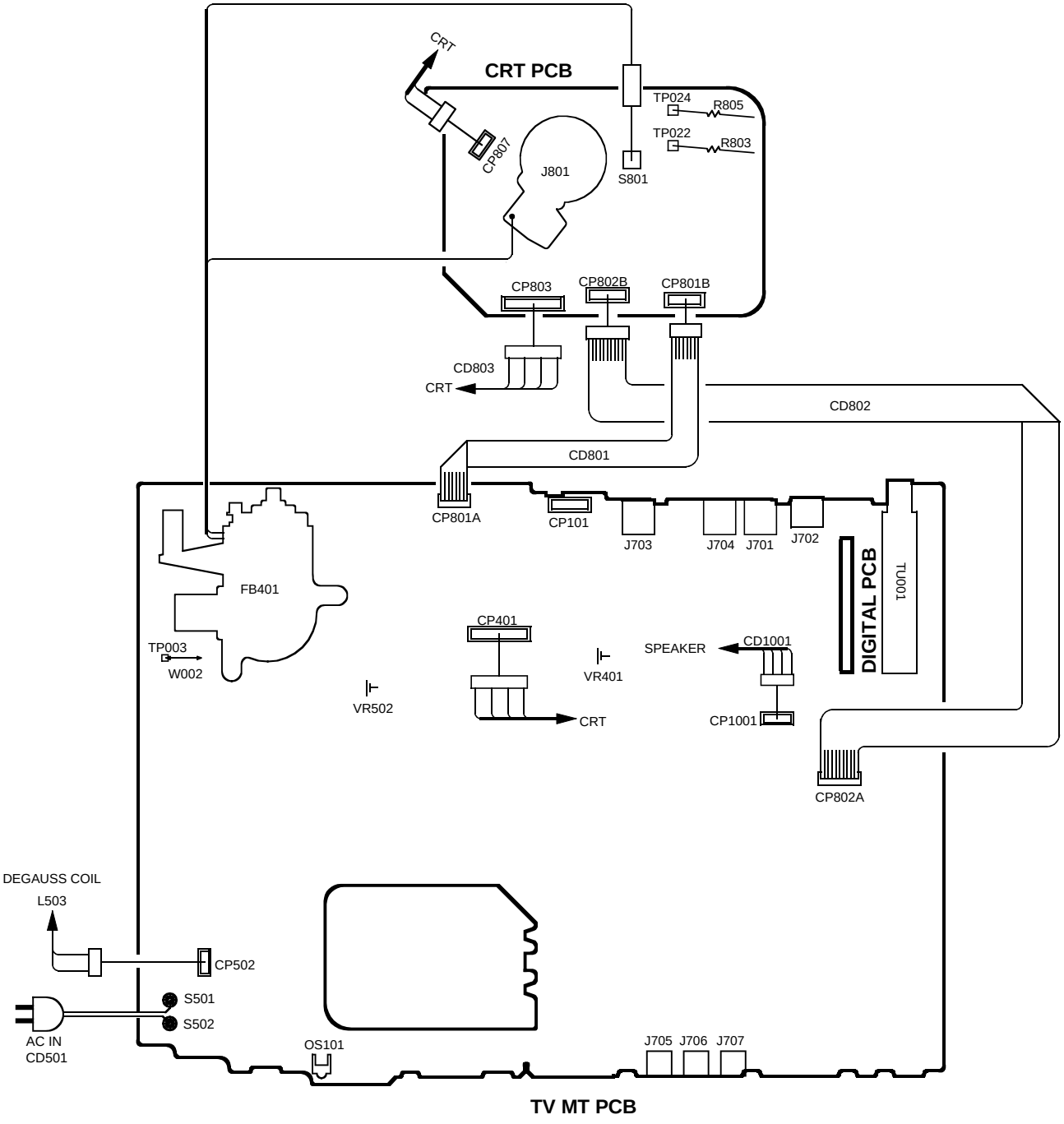


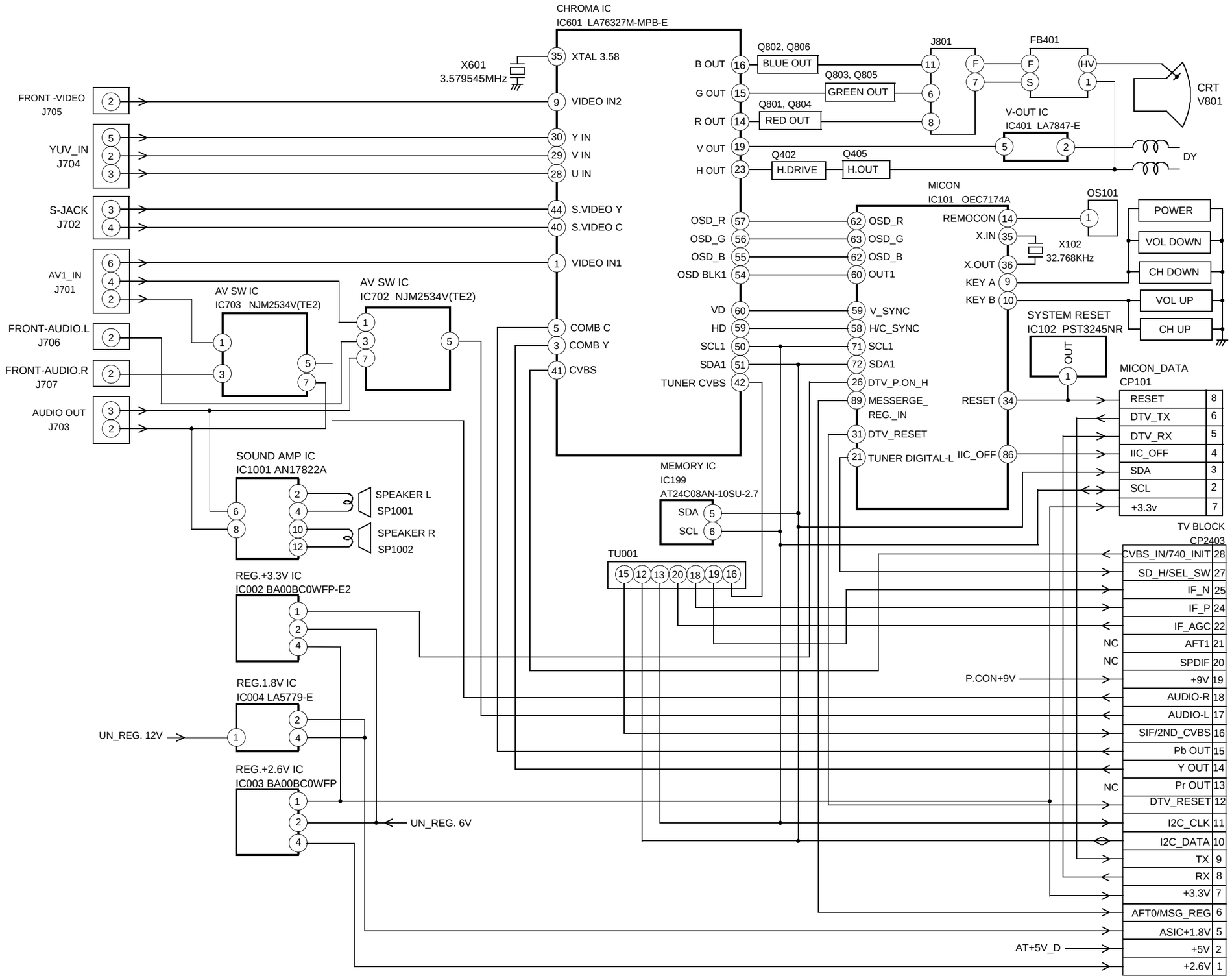
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

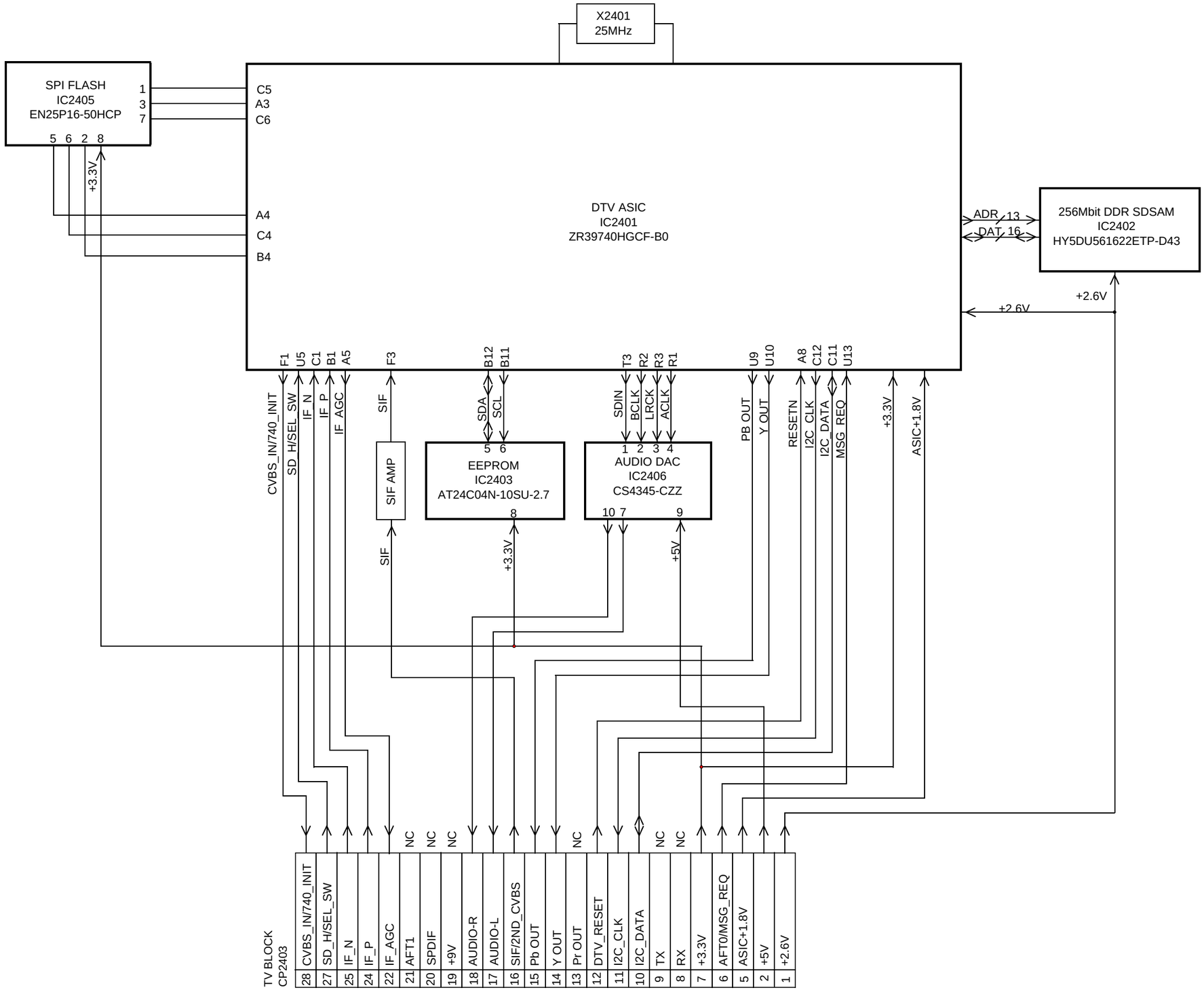
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



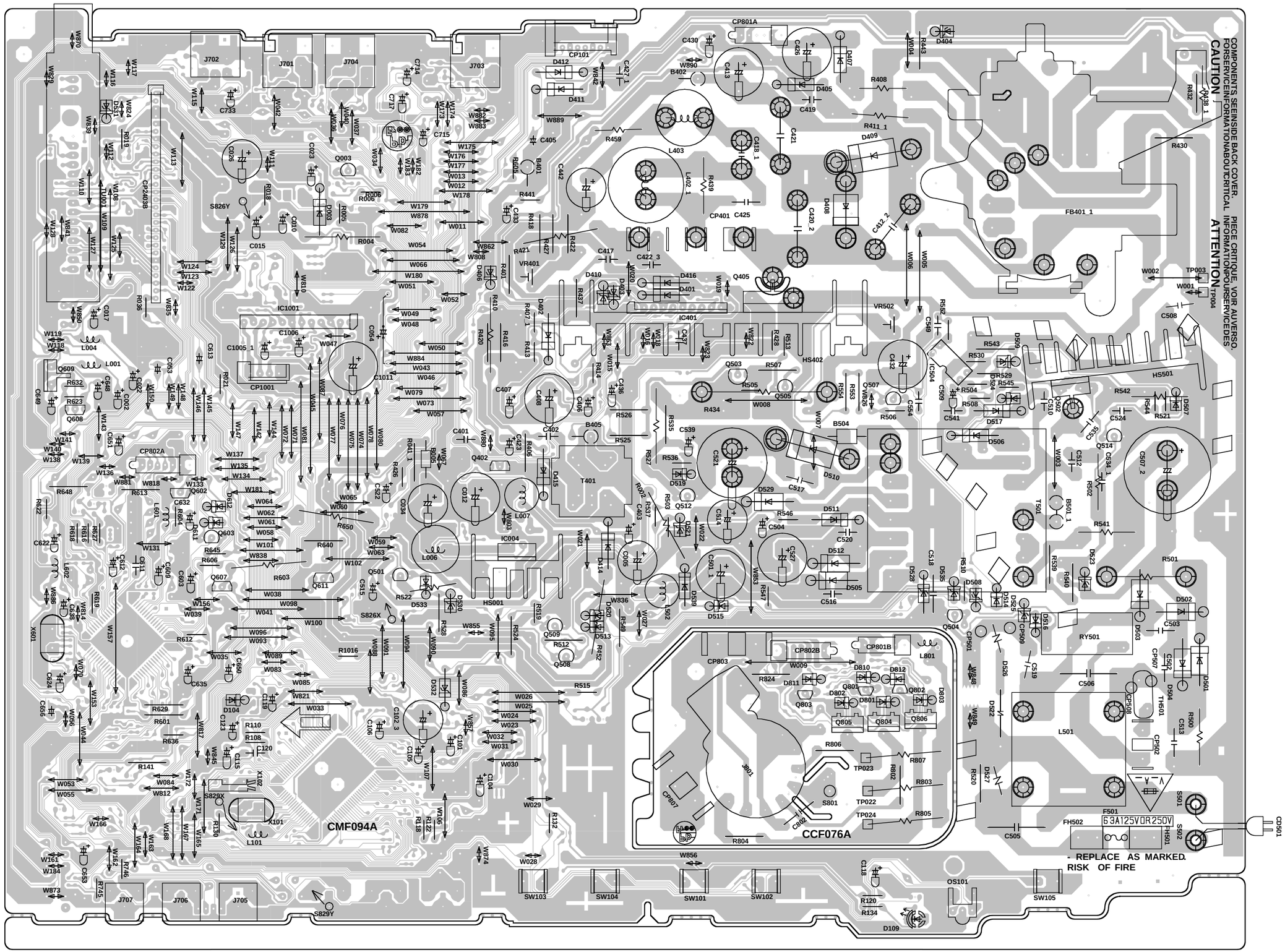
MICON/CHROMA BLOCK DIAGRAM



SD DIGITAL MODULE BLOCK DIAGRAM



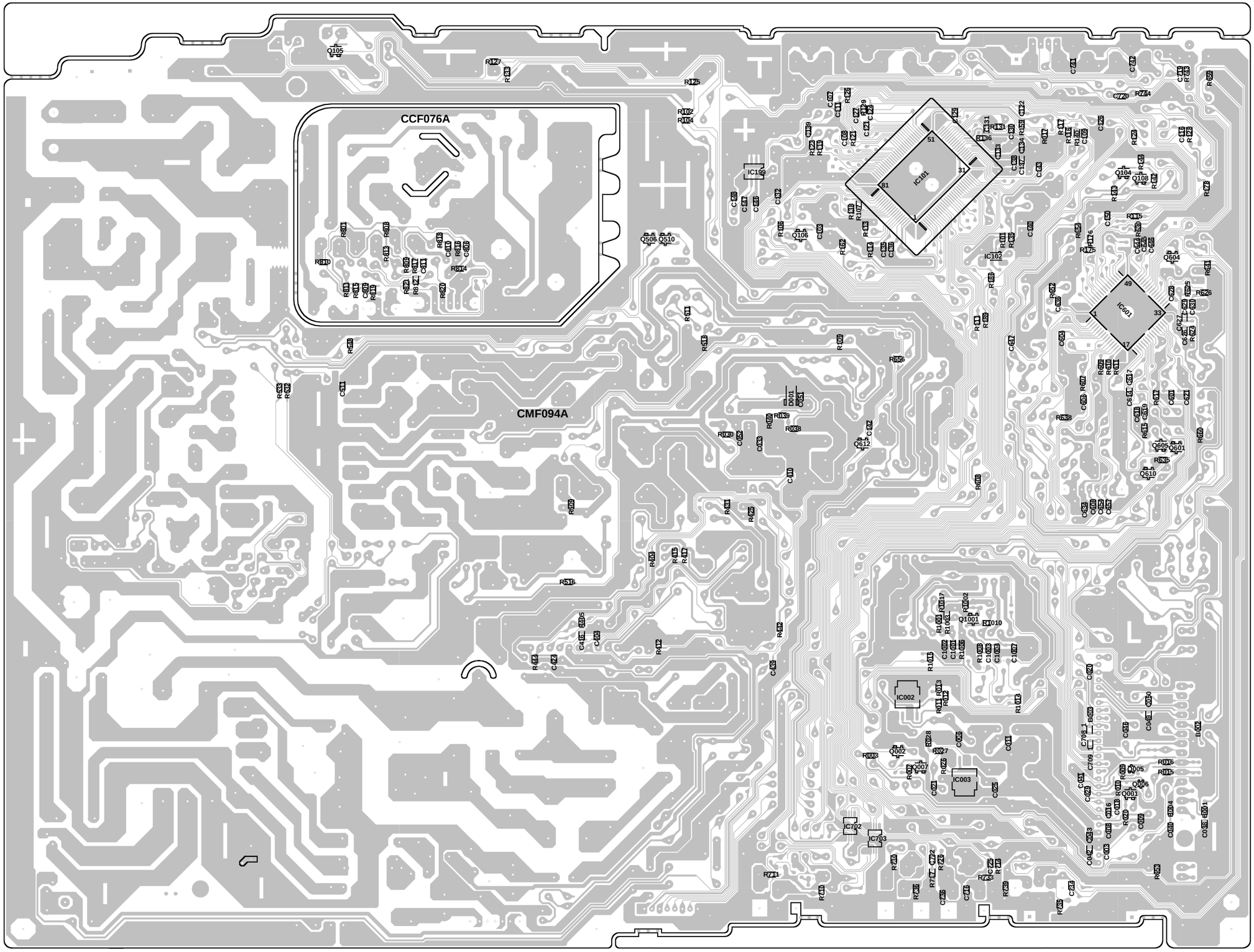
PRINTED CIRCUIT BOARDS
TV MT/CRT (INSERTED PARTS)
SOLDER SIDE



F-1

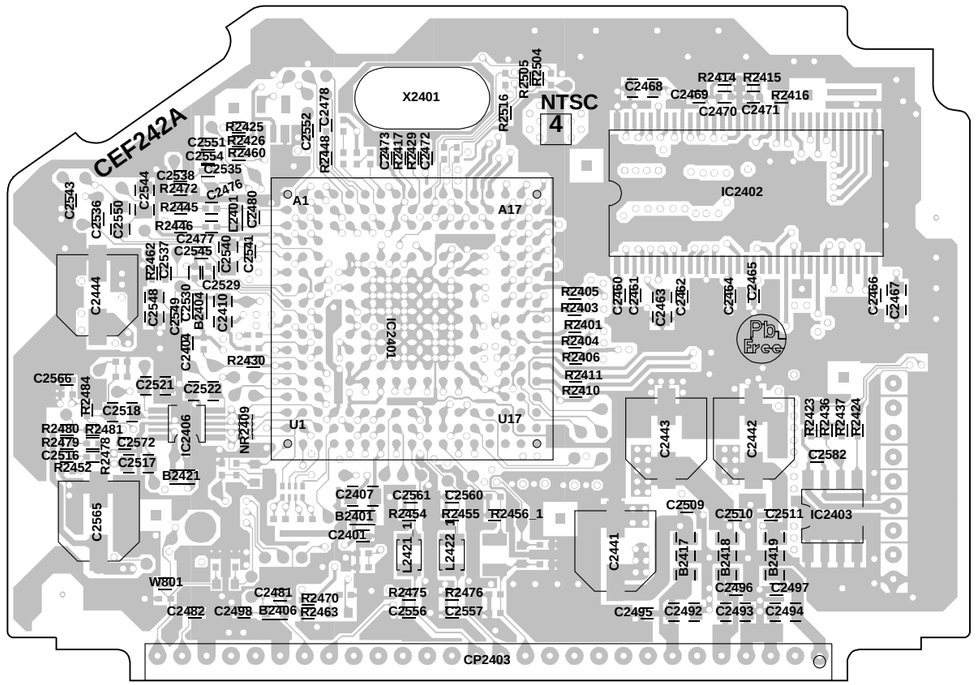
F-2

PRINTED CIRCUIT BOARDS
TV MT/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE

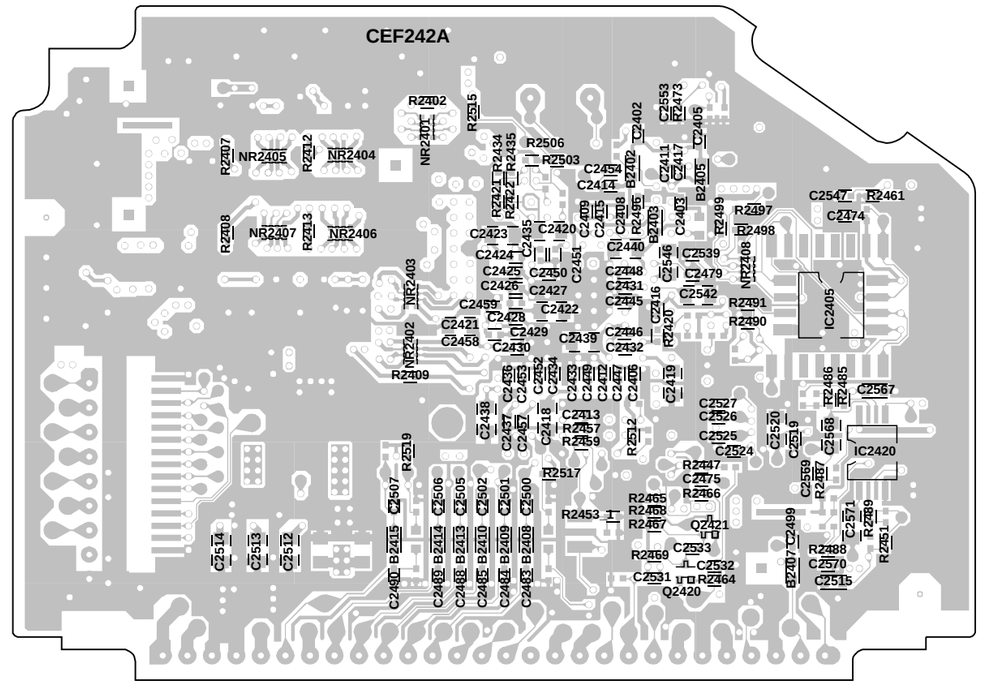


PRINTED CIRCUIT BOARDS

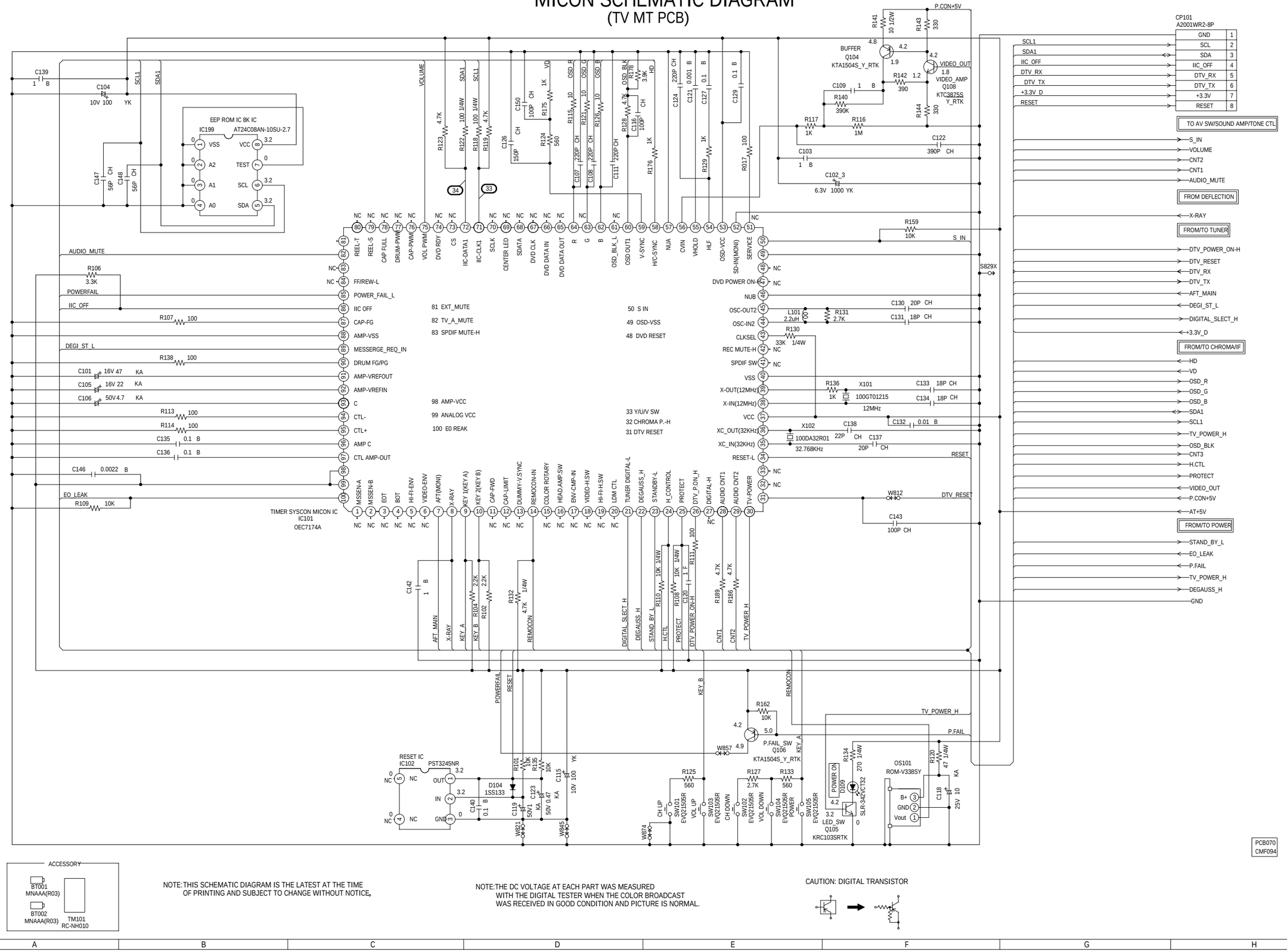
DIGITAL (TOP SIDE)



DIGITAL (BOTTOM SIDE)



MICON SCHEMATIC DIAGRAM
(TV MT PCB)



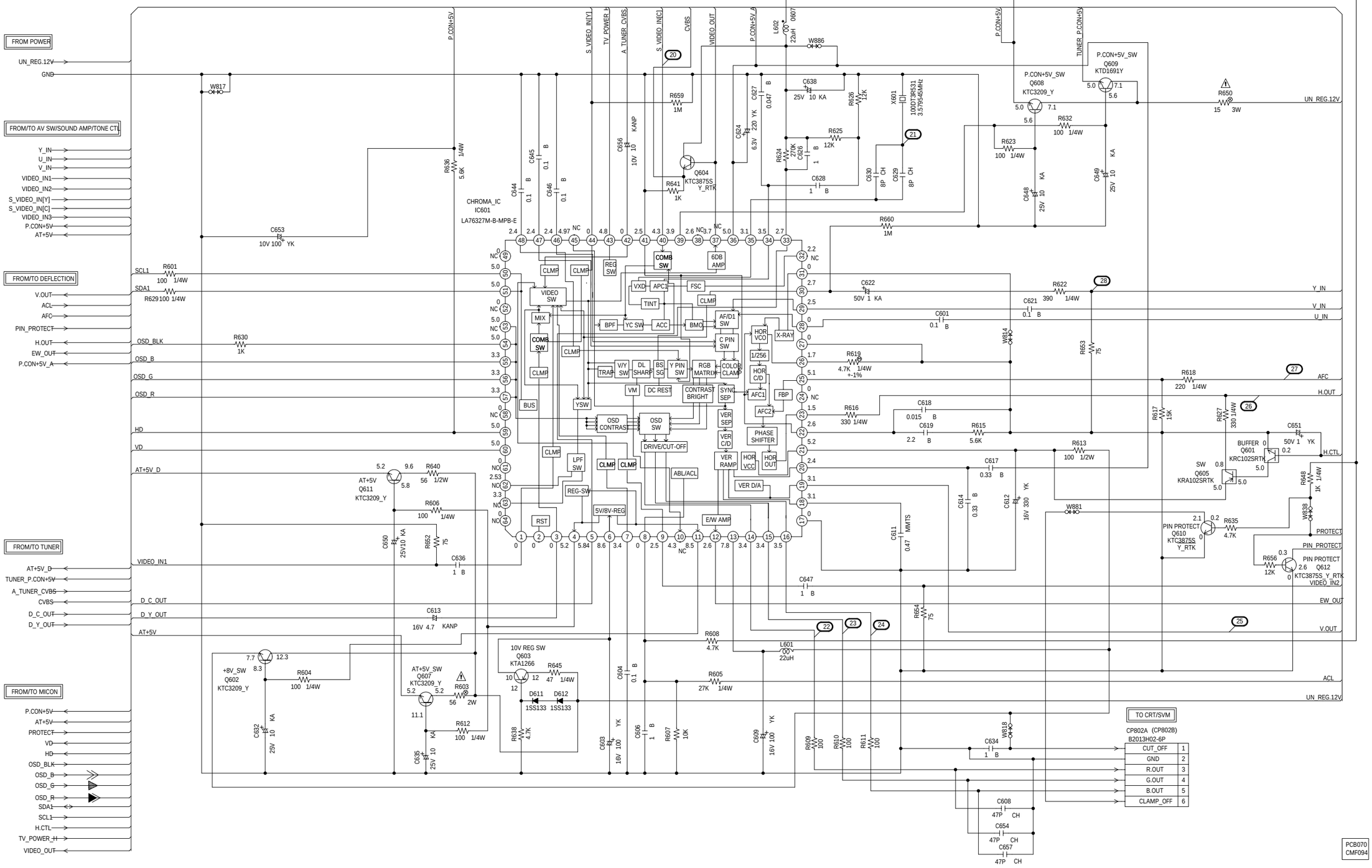
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR

CHROMA/IF SCHEMATIC DIAGRAM

(TV MT PCB)



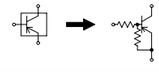
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

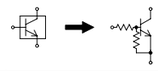
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

CAUTION: DIGITAL TRANSISTOR

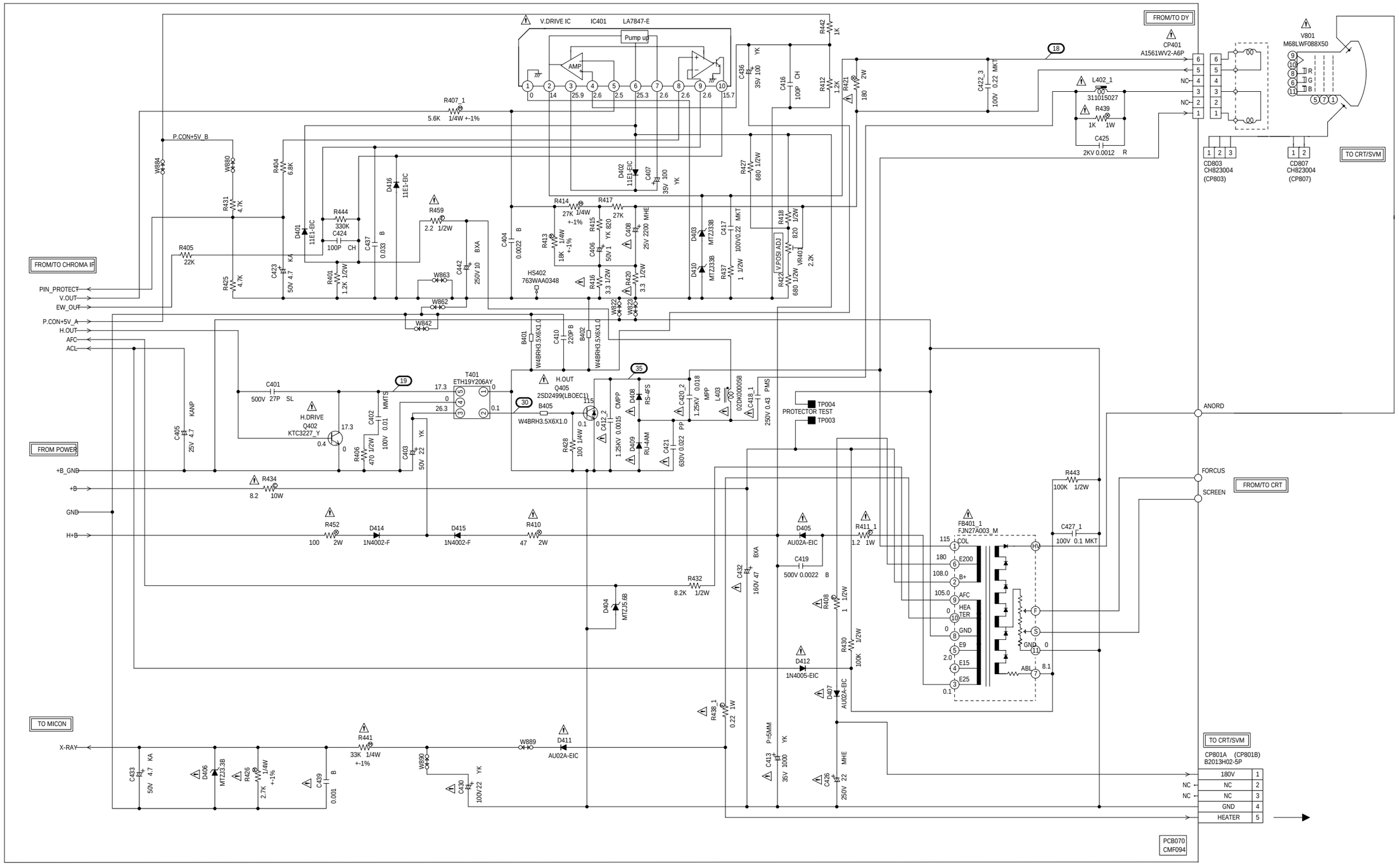


CAUTION: DIGITAL TRANSISTOR



DEFLECTION SCHEMATIC DIAGRAM

(TV MT PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

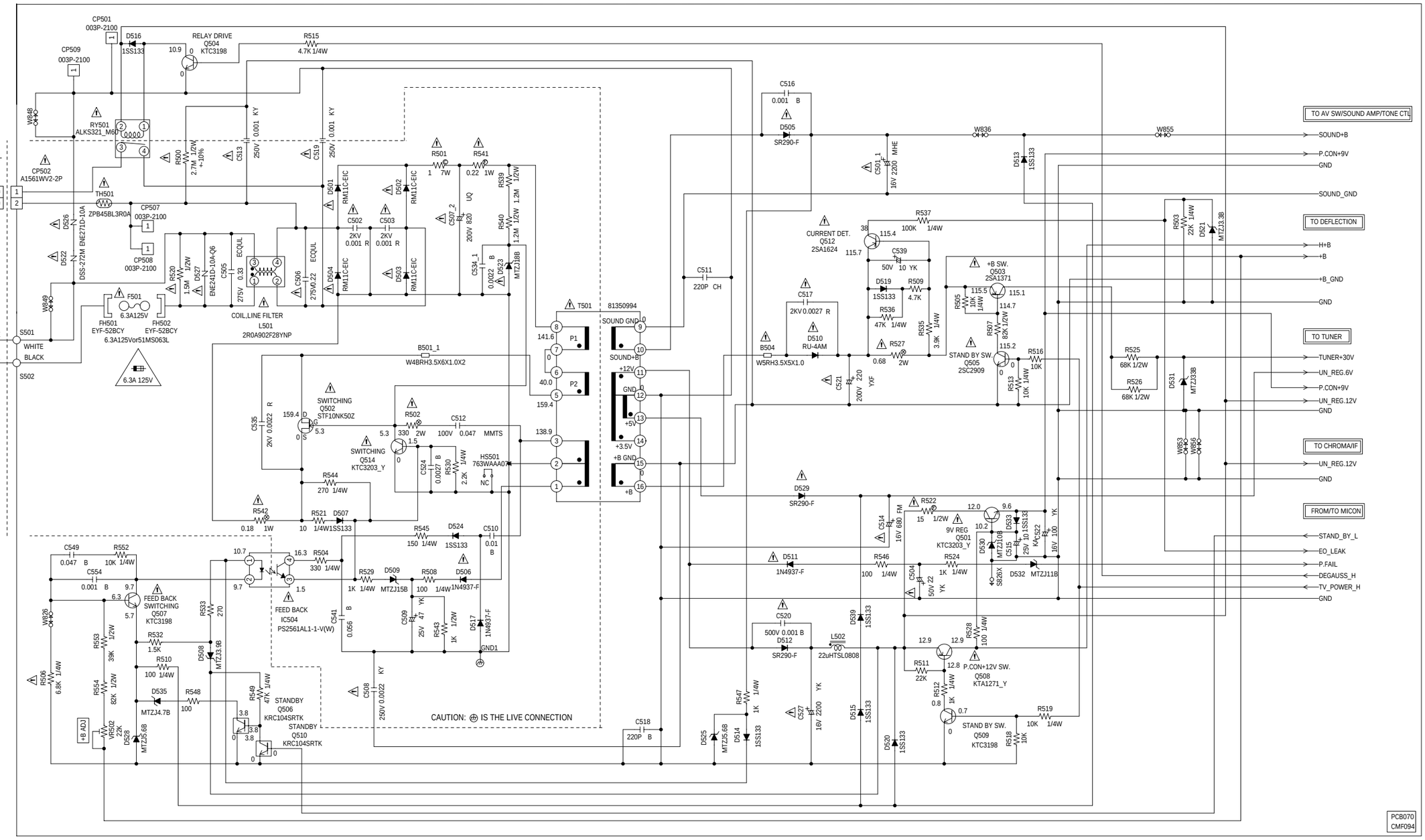
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

CAUTION: DIGITAL TRANSISTOR

POWER SCHEMATIC DIAGRAM

(TV MT PCB)



6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)

CAUTION: F502 AND F503 ARE MANUFACTURED BY SKYGETE CO.,LTD TYPE 20N

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

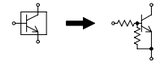
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

CAUTION: DIGITAL TRANSISTOR



TUNER SCHEMATIC DIAGRAM
(TV MT PCB)

TU001 ENG36E03KF

TO CHROMA/IF

A_TUNER_CVBS

FRON/TO MICON

TO AV SW/SOUND AMP/TONE CTL

FROM CHROMA/IF

FROM POWER

FROM/TO CHROMA/IF

FROM/TO AV OUT CP2403B (CP2403)

REG.+3.3V IC IC002 BA00BC0WFP-E2

REG. +2.6V IC IC003 BA00BC0WFP-E2

REG. 1.8V IC IC004 LA5779-5

DTV.P.ON_SW Q003 KTA1271_Y

DTV.P.ON_SW Q002 KRC102SRTK

LEVEL CONVERT Q006 2SK393800L

LEVEL CONVERT Q005 2SK393800L

AFT Q001 2SA1530A

SW ON/OFF Q007 KTC3875S_Y_RTK

D003 1N4005-EIC

HS001 763WAAA115

W850 W824 W878 W835 W803

L001 22uH 0607

L004 22uH 0607

L006 33uH7313N

L007 22uH TSL0808

B001 B002 B003 B004 FCM1608KF-102T02

S826Y

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

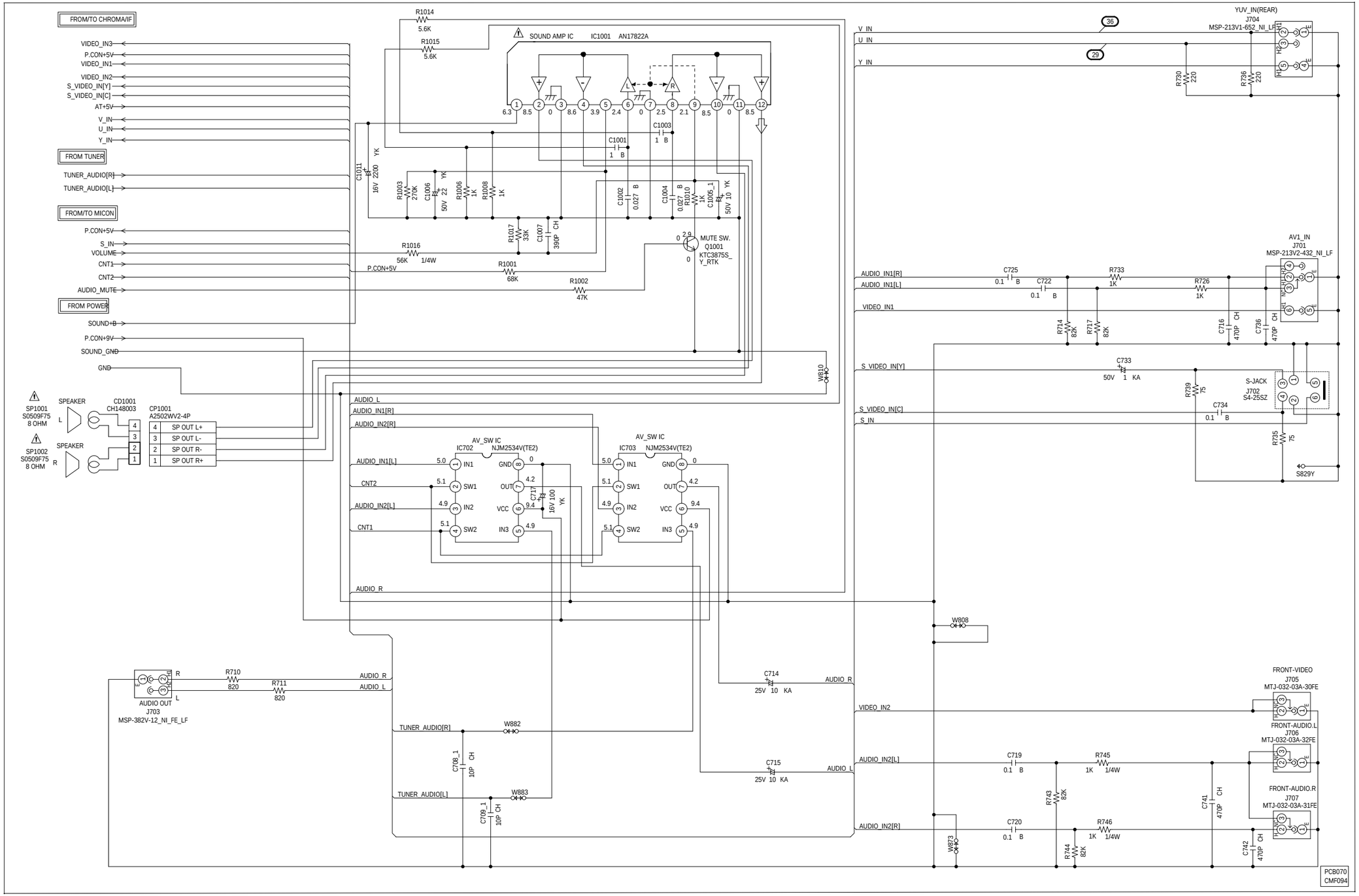
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

PCB070 CMF094

CAUTION: DIGITAL TRANSISTOR

AV SW/SOUND AMP/TONE CTL SCHEMATIC DIAGRAM (TV MT PCB)



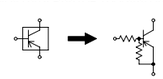
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

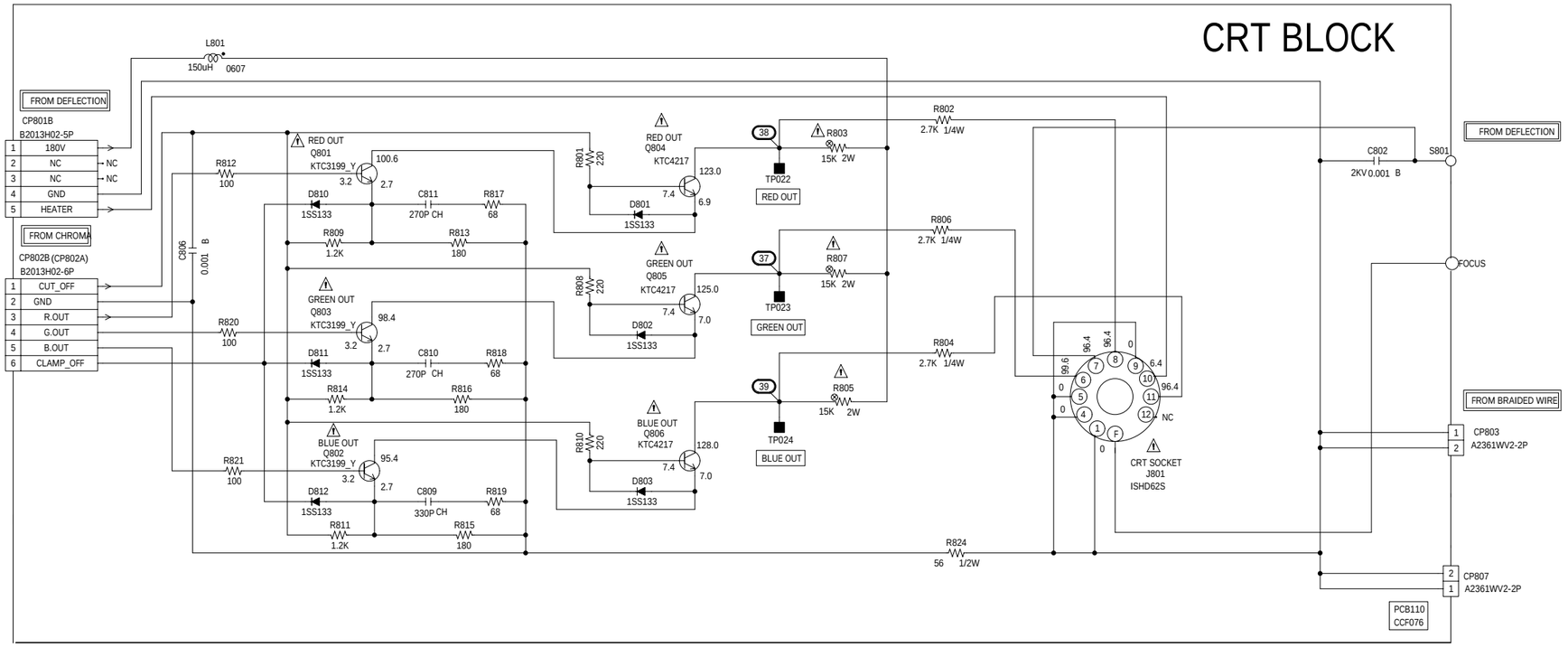
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR



CRT / SVM SCHEMATIC DIAGRAM

(CRT PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

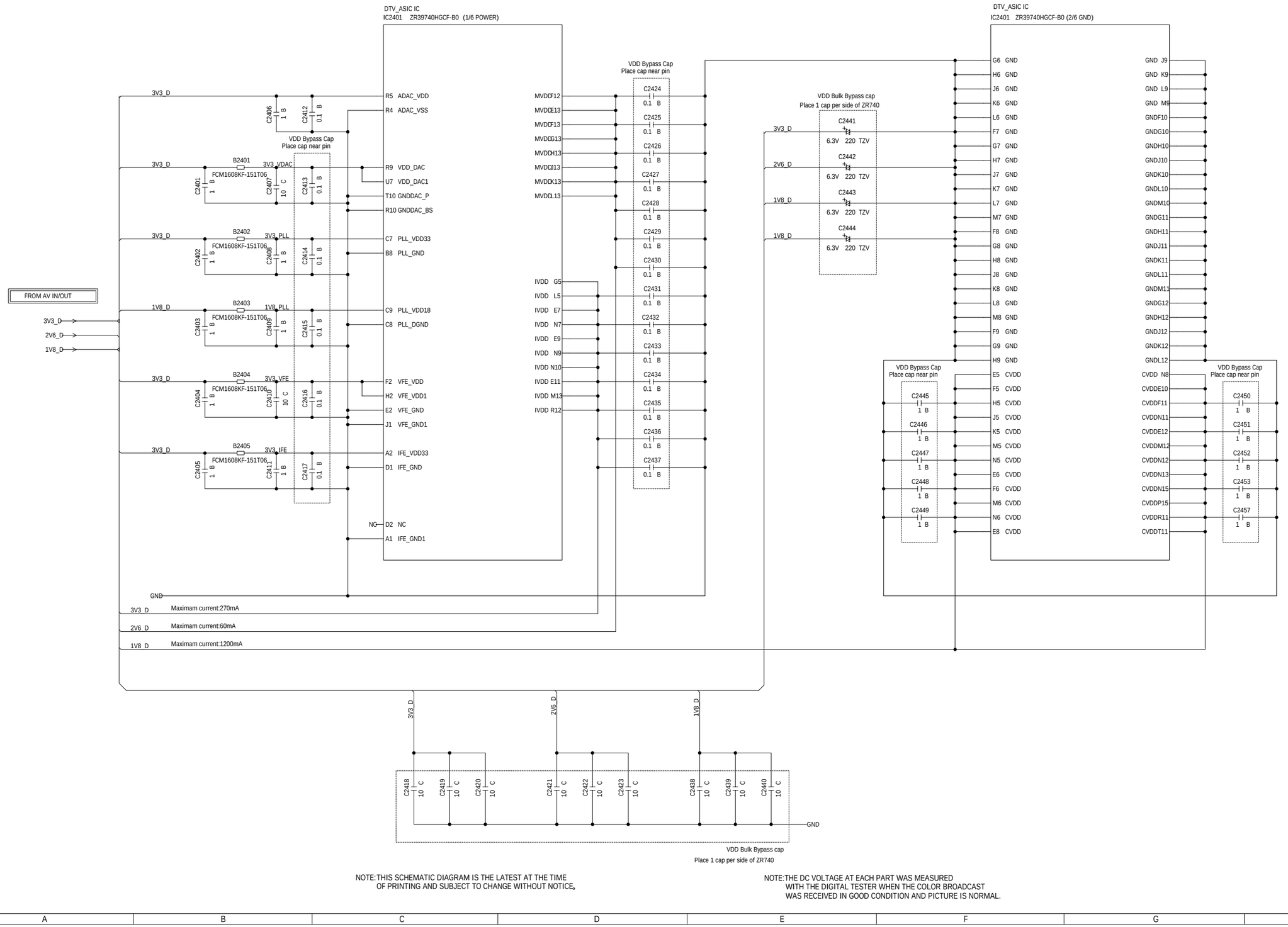
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

POWER & GROUND SCHEMATIC DIAGRAM

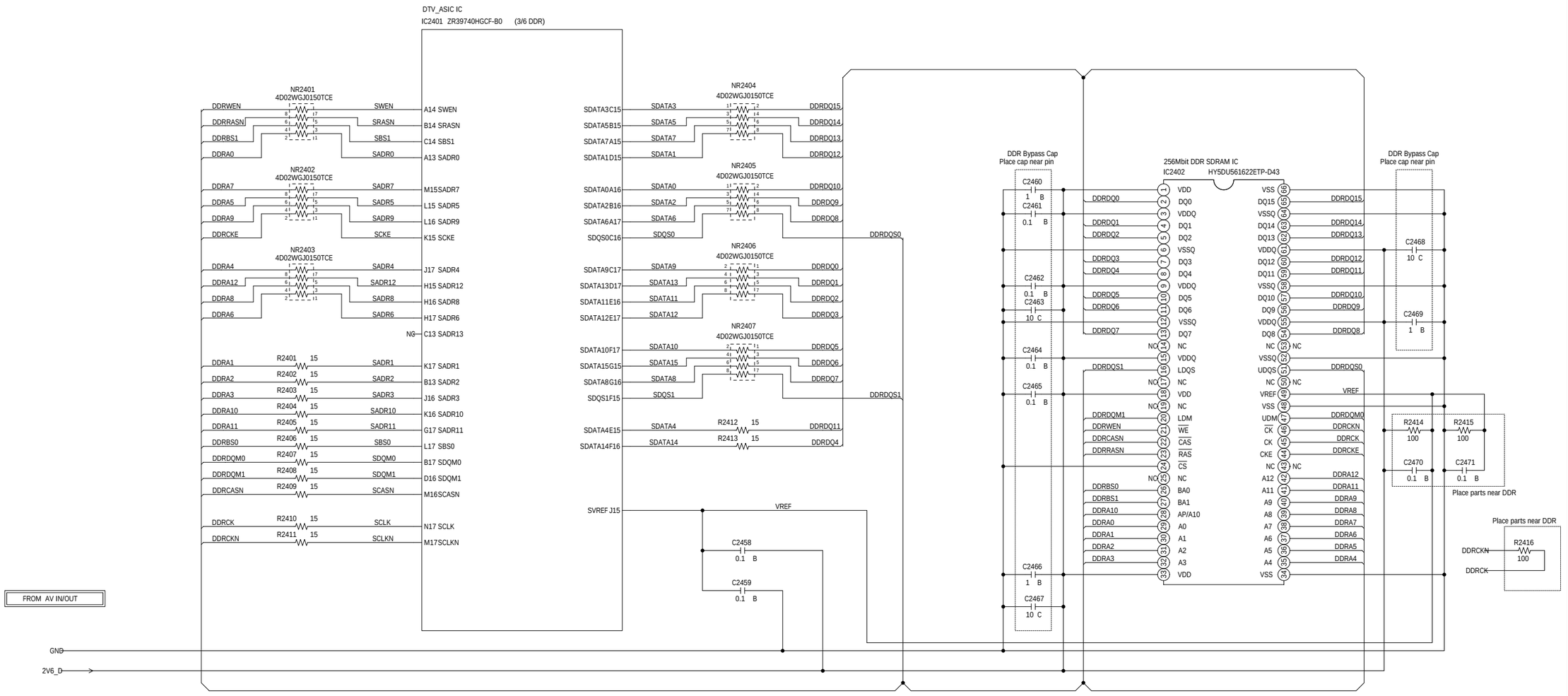
(DIGITAL PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

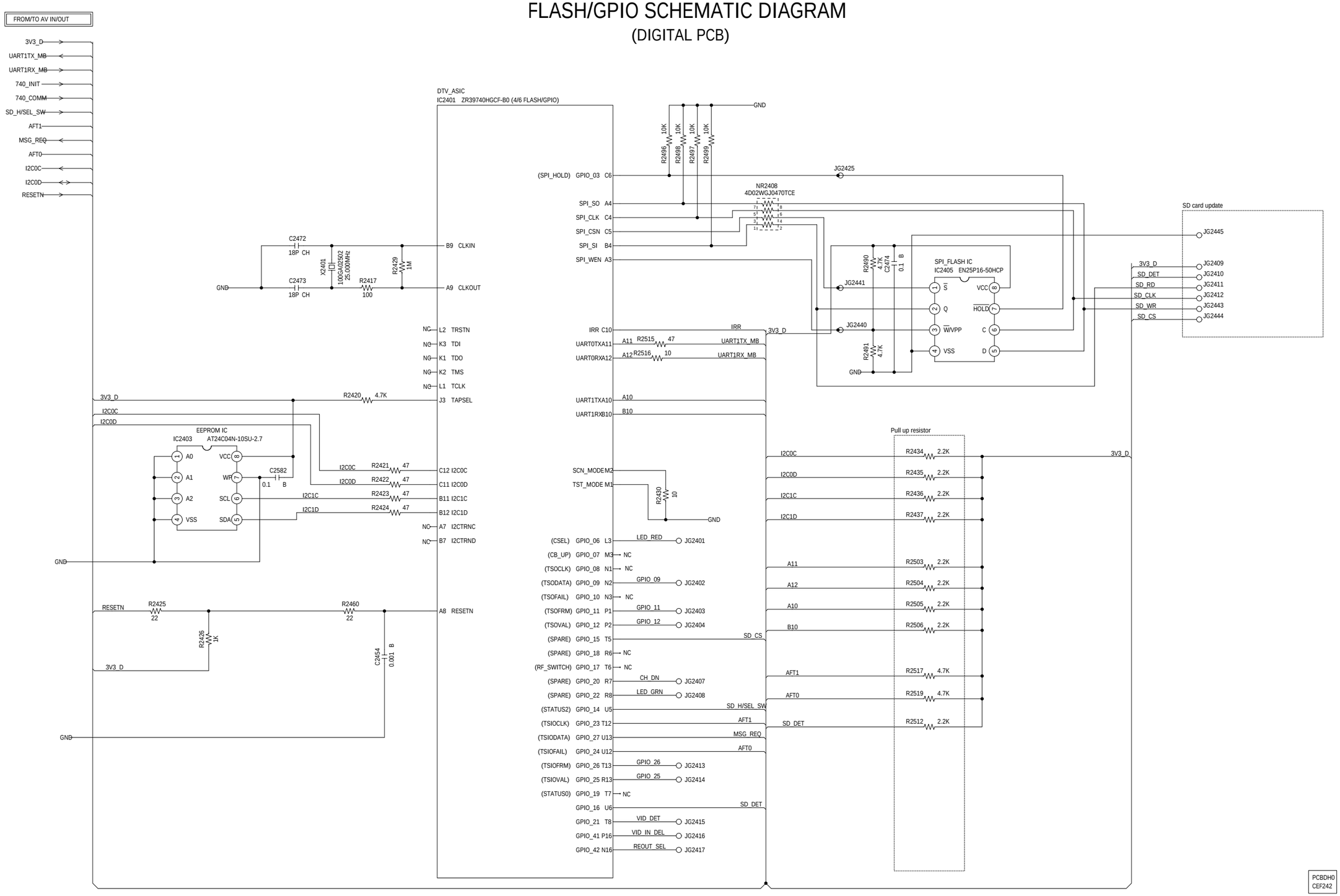
SDRAM SCHEMATIC DIAGRAM
(DIGITAL PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

FLASH/GPIO SCHEMATIC DIAGRAM
(DIGITAL PCB)

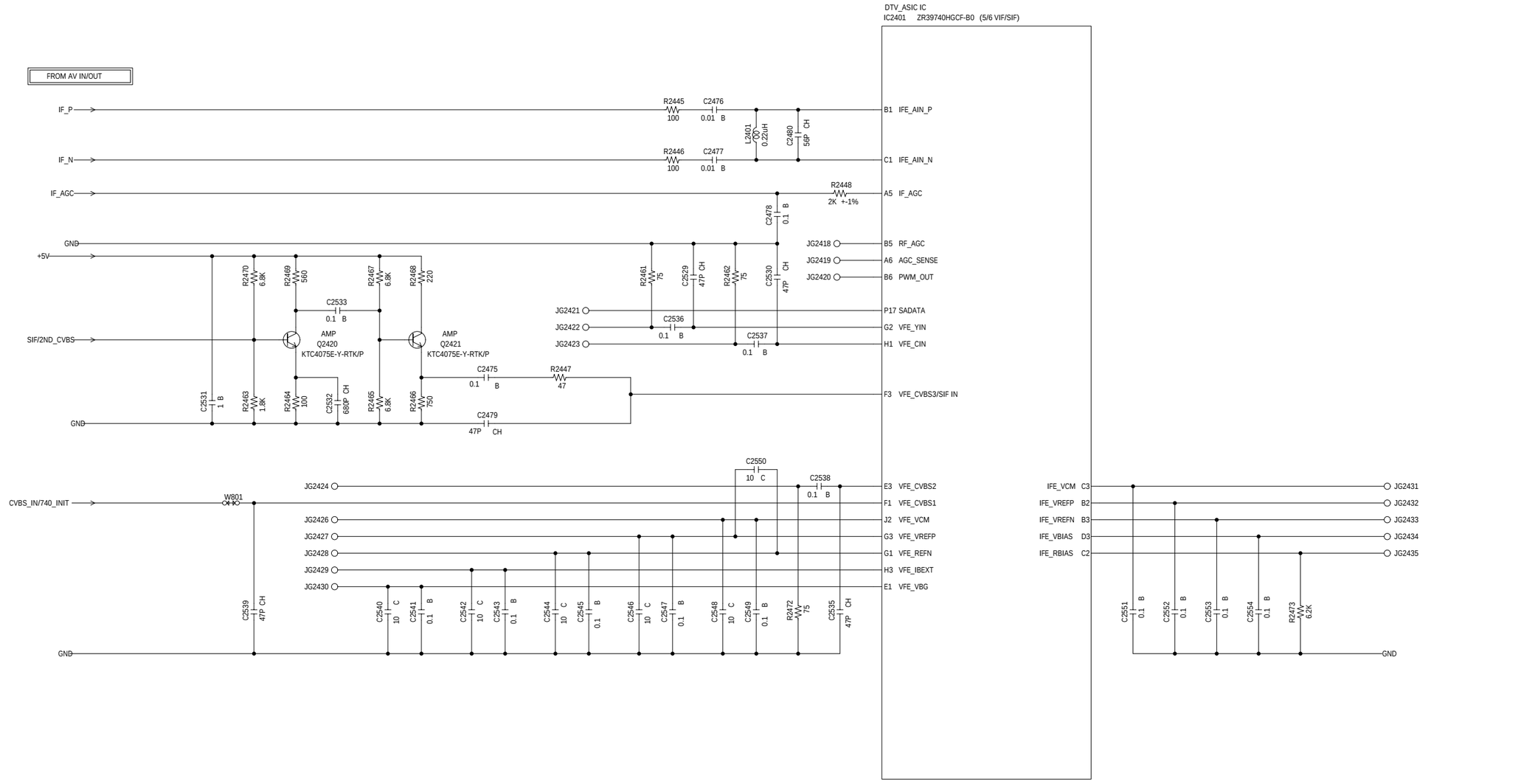


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

VIF/SIF SCHEMATIC DIAGRAM

(DIGITAL PCB)

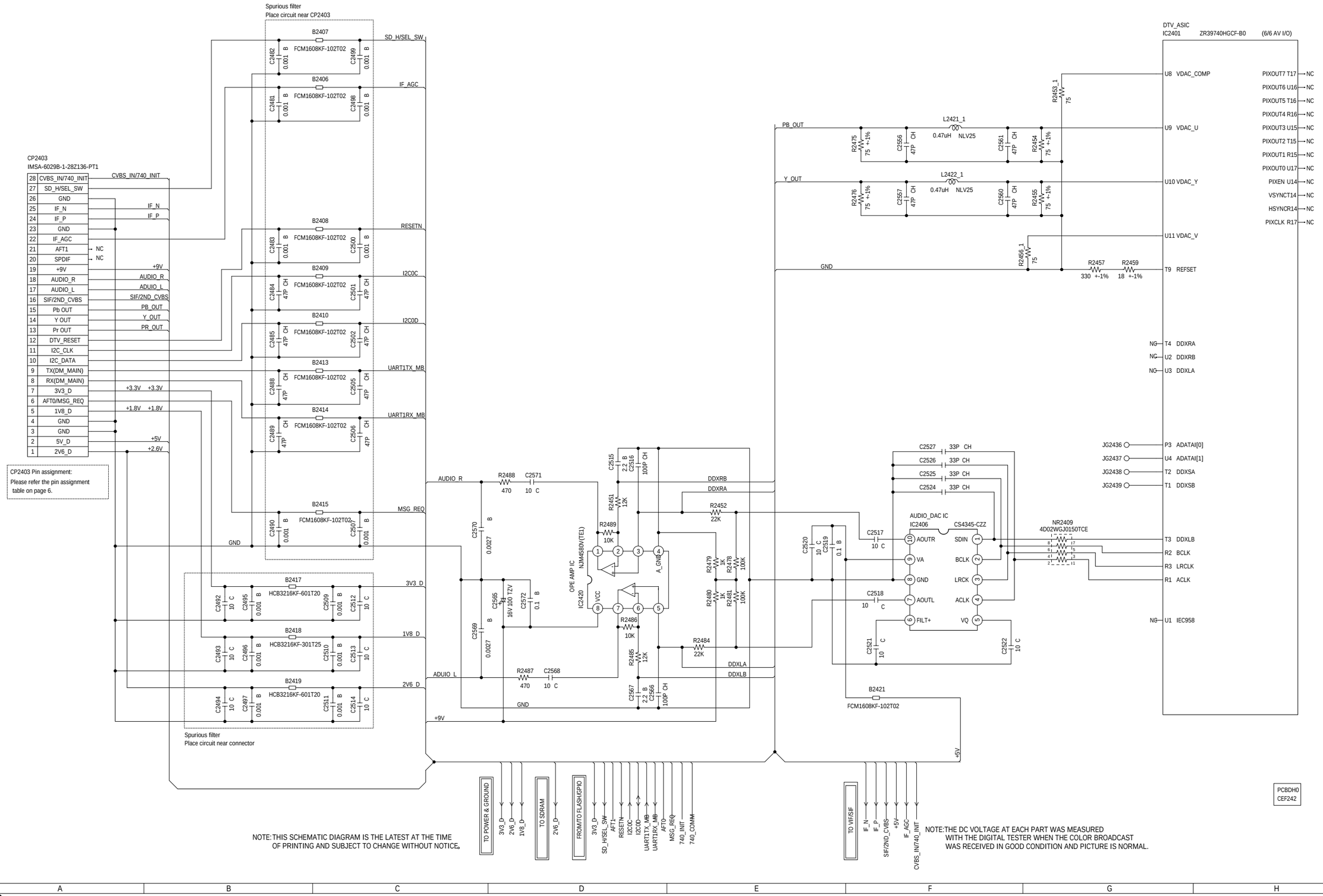


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

AV IN/OUT SCHEMATIC DIAGRAM

(DIGITAL PCB)

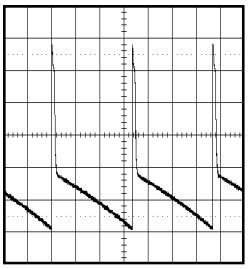


WAVEFORMS

DEFLECTION

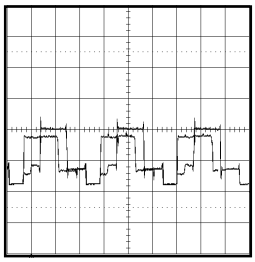
POWER ON
5ms
10.0V

(18)



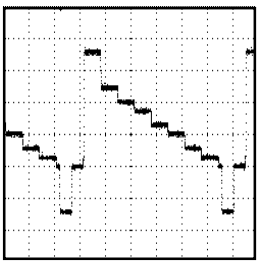
20µs
2V

(23)



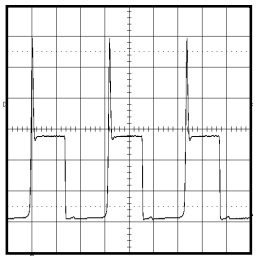
10µs
200mV

(28)



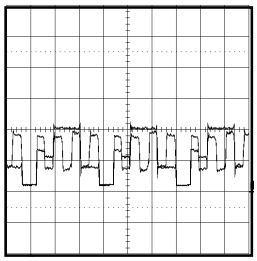
20µs
20V

(19)



20µs
2V

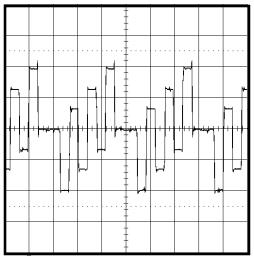
(24)



AV/SOUND

20µs
200mV

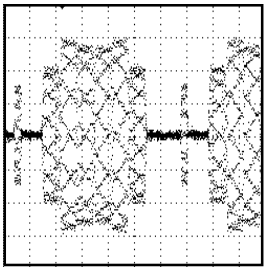
(29)



CHROMA/IF

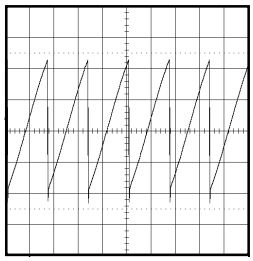
10µs
200mV

(20)



10ms
0.5V

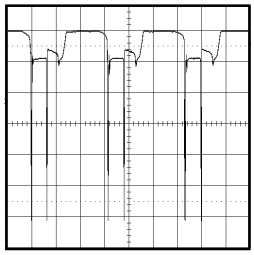
(25)



DEFLECTION

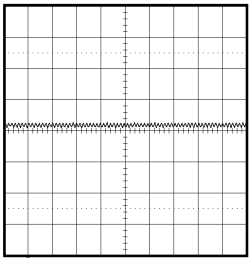
20µs
2V

(30)



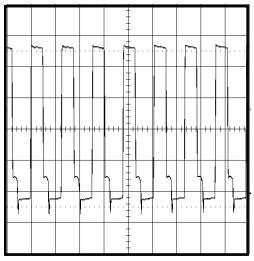
2µs
1V

(21)



50µs
1V

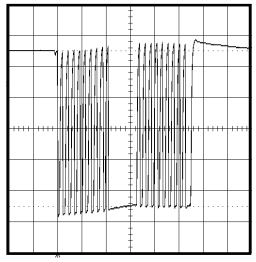
(26)



MICON

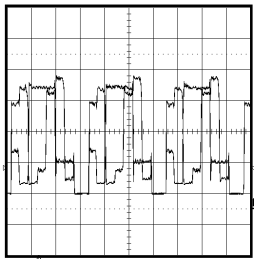
50µs
1V

(33)



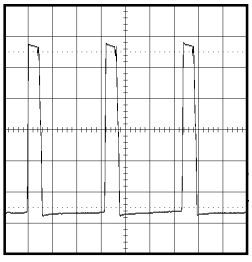
20µs
1V

(22)



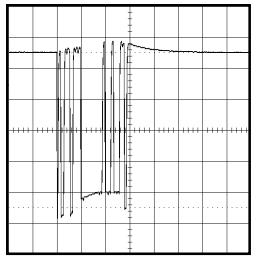
20µs
2V

(27)



0.1ms
1V

(34)



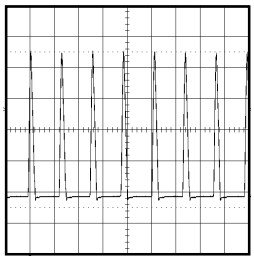
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

DEFLECTION

50µs
200V

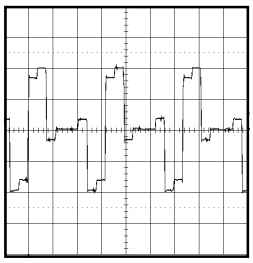
㉟



AV/SOUND

20µs
200mV

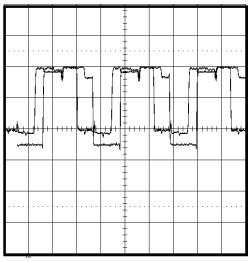
㊱



CRT/SVM

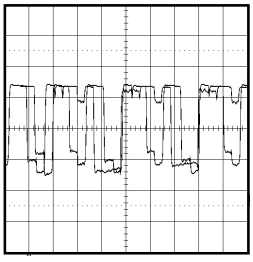
20µs
50V

㊲



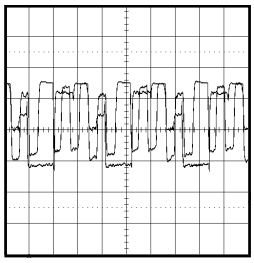
20µs
50V

㊳



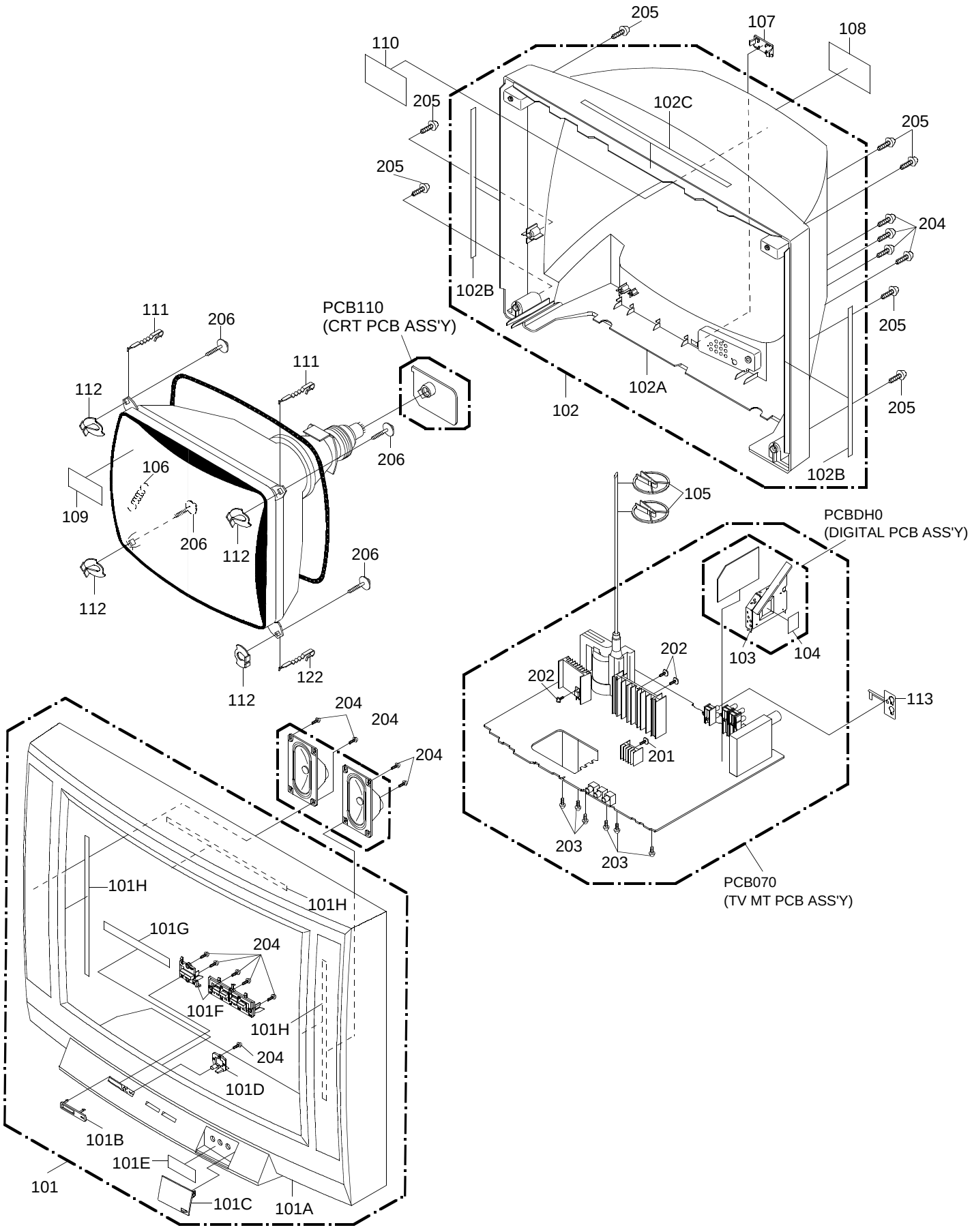
20µs
50V

㊴

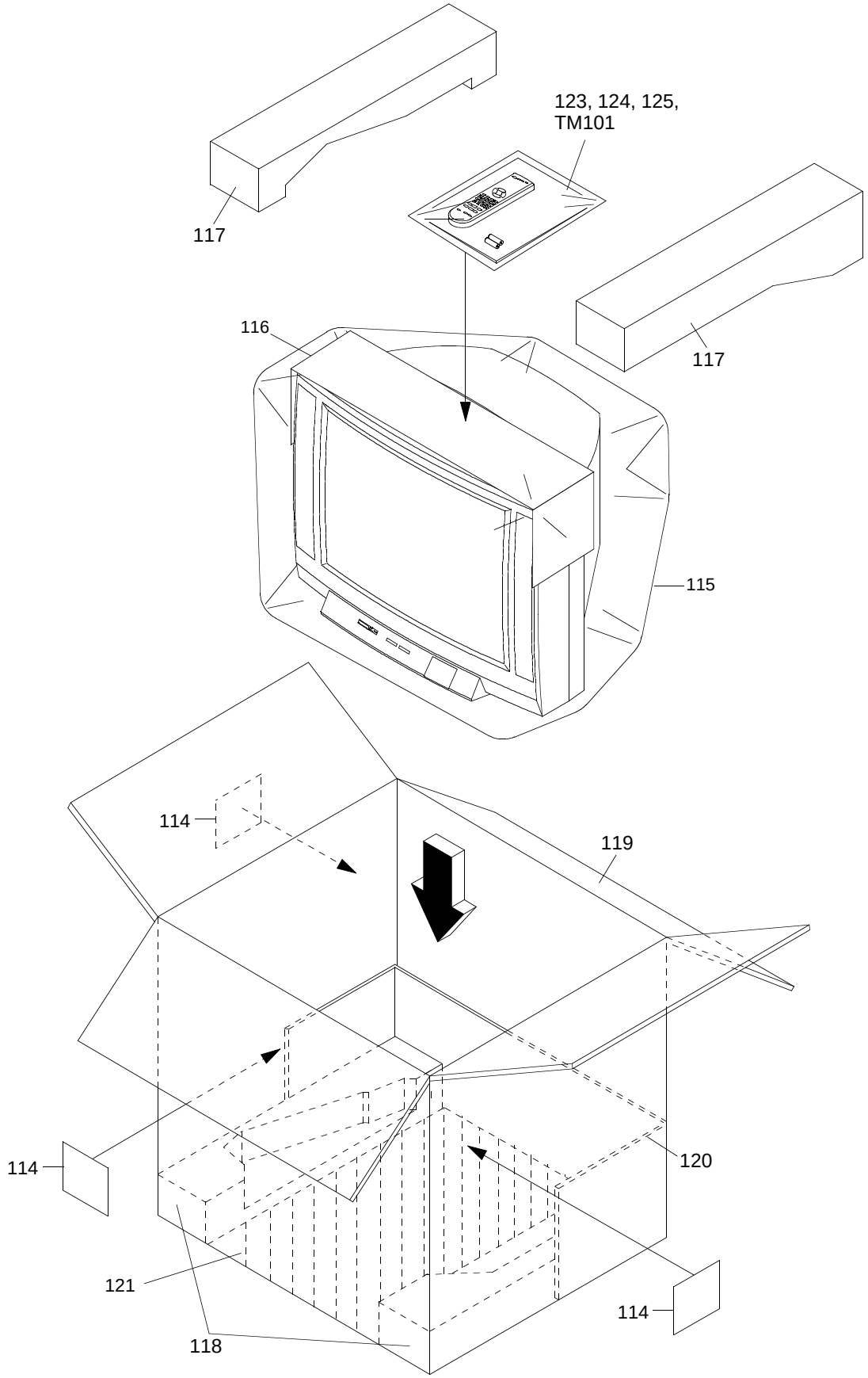


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW
(PACKING DIAGRAM)



MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
101	75006496	7A701A848A	FRONT CABI ASS'Y
101A	75006497	701WPJD390	CABINET FRONT
101B	72783245	711WPAA131	PLATE,FRONT
101C	72783246	712WPBA147	DOOR
101D	72783247	713WPAA229	GLASS,LED
101E	72783552	7235490075	AV,LABEL
101F	72783248	735WPBB468	BUTTON,ASS'Y
101G	72795625	800WQ0A041	FELT SHEET
101H	72781222	800WQ0A092	FELT SHEET
102	75006465	7A702A258A	BACK CABI ASS'Y
102A	75006466	702WPAB015	CABINET BACK
102B	72781222	800WQ0A092	FELT SHEET
102C	72794727	800WQ0A076	FELT,SHEET
103	75006373	7G7520045A	SHIELD BOTTOM ASS'Y
104	75006289	800WR00081	SHEET SILICONE
105	72794734	899HV3T000	HOLDER ANODE WIRE
106	72795687	741WUA0021	SPRING EARTH
107	72783348	706WPA0015	COVER CONNECTOR
108	75007106	722549A707	SHEET RATING
109	75006499	723549A074	POP LABEL
110	72783614	726000A137	SHEET CRT SERVICEMAN
111	72798683	762WPA0009	HOLDER,CRT WIRE
112	72795682	769WSAA012	WASHER CRT T=0.5
113	75006893	752WSAA143	SHIELD JACK
114	75006501	723000D467	SHEET BAR CODE
115	72794741	791WHAA116	FILM,BAG
116	72782503	791WHAA138	LIGHTRON SHEET
117	72783594	792WHA0640	PACKAGE,TOP
118	72783592	792WHA0641	PACKAGE,BOTTOM
119	75006502	793WCDD363	GIFT BOX
120	75004939	795WCAA537	PAD 368*1114
121	72783253	795WCDA023	PAD
122	72783298	762WPAA006	HOLDER CRT WIRE 2
123	72781569	J3N51617A	REGISTRATION CARD
124	75006500	J30K0121A	INSTRUCTION BOOK(E/S)
125	72781628	JA4ND200	POLYBAG INSTRUCTION(RED CAUTION)
201	72798786	810763080U	SCREW TAP TITE(S) BRAZIER 3*8 CH
202	72798789	8109I30A0U	SCREW TAP TITE(B) WH7 3*10 CH
203	72781251	810963080Q	SCREW TAP TITE(B) BRAZIER 3*8 STAINLESS
204	72798791	8110630A0U	SCREW TAP TITE(P) BRAZIER 3*10 CH
205	72798795	8117540B0U	SCREW TAPPING(B0) TRUSS 4*20 CH
206	72781288	8141J50D5U	SCREW TAP TITE(P) GW20 5*45 CH HEXAGON

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			RESISTORS	
R002	72794621	R3X28B010J	R,METAL OXIDE	1 OHM 3W
R004	72796002	R3X28BR22J	R,METAL OXIDE	0.22 OHM 3W
R408	72794614	R65582010J	R,FUSE	1 OHM 1/2W
R410	72795502	R3X18A470J	R,METAL OXIDE	47 OHM 2W
R411	72781752	R655811R2J	R,FUSE	1.2 OHM 1W
R421	72795112	R3X18A181J	R,METAL OXIDE	180 OHM 2W
R434	72781733	R5X2CF8R2J	R,CEMENT	8.2 OHM 10W
R438	72794633	R63881R22J	R,FUSE	0.22 OHM 1W
R439	72794608	R3K581102J	R,METAL OXIDE	1K OHM 1W
R452	72796046	R3X18A101J	R,METAL OXIDE	100 OHM 2W
R459	72795518	R655822R2J	R,FUSE	2.2 OHM 1/2W
R500	72794631	R0G3K2275K	RC	2.7M OHM 1/2W
R501	72795523	R5X2AE010J	R,CEMENT	1 OHM 7W
R502	72781694	R3K58A331J	R,METAL OXIDE	330 OHM 2W
R522	75006423	R65582150J	R,FUSE	15 OHM 1/2W
R527	72794624	R3X18AR68J	R,METAL OXIDE	0.68 OHM 2W
R541	72794633	R63881R22J	R,FUSE	0.22 OHM 1W
⚠R542	72796436	R3X181R18J	R,METAL OXIDE	0.18 OHM 1W
R603	72797884	R3X18A560J	R,METAL OXIDE	56 OHM 2W
R650	72795509	R3X28B150J	R,METAL OXIDE	15 OHM 3W
⚠R803	72796459	R3X18A153J	R,METAL OXIDE	15K OHM 2W
⚠R805	72796459	R3X18A153J	R,METAL OXIDE	15K OHM 2W
⚠R807	72796459	R3X18A153J	R,METAL OXIDE	15K OHM 2W
			CAPACITORS	
C005	75006424	E7EPF1222M	CE	2200 UF 10V
C012	75006425	E7EYF2102M	CE	1000 UF 16V
C054	75006892	E7EPU3470M	CE	47 UF 25V
C408	75006224	E7ESF3222M	CE	2200 UF 25V
C412	72796348	P4N8FJ152H	CMPP	0.0015UF 1.25KV
C413	75006426	E7EPF4102M	CE	1000 UF 35V
C418	72795564	P4J7F3434J	CMPP	0.43 UF 250V PMS
C420	72797700	P4N8FJ183H	CMPP	0.018 UF 1.25KV
C421	72783563	P3G1F5223J	CPP	0.022 UF 630V PP
C425	72797082	C03L0R7B3K	CC	0.0012UF 2KV R
C426	75006227	E7ESFD220M	CE	22 UF 250V
C432	75006427	E8EBFB470M	CE	47 UF 160V
C442	75006226	E8EBFD100M	CE	10 UF 250V
C501	75006428	E7ESF2222M	CE	2200 UF 16V
C502	72794393	C03L0R713K	CC	0.001 UF 2KV R
C503	72794393	C03L0R713K	CC	0.001 UF 2KV R
C505	72794401	P2122B334M	CMP	0.33 UF 275V ECQUL
C506	72795566	P2122B224M	CMP	0.22 UF 275V ECQUL
C507	75006429	E71VHC821M	CE	820 UF 200V
C508	72796318	CC3LE0MH3M	CC	0.0022UF 250V
C513	72796319	CC3LE0M13M	CC	0.001 UF 250V
C517	72797086	C03L0R7K3K	CC	0.0027UF 2KV R
C519	72796319	CC3LE0M13M	CC	0.001 UF 250V
C521	75006430	E8E2FC221M	CE	220 UF 200V
C527	75006431	E7EPF2222M	CE	2200 UF 16V
C535	72795583	C03L0R7H3K	CC	0.0022UF 2KV R
C802	72795578	C0JBB0713K	CC	0.001 UF 2KV B
C1011	75006431	E7EPF2222M	CE	2200 UF 16V
			DIODES	
D001	75006232	D4CRSK34A0	DIODE SCHOTTKY	SK34A
D003	72795626	D2WXN40050	DIODE SILICON	1N4005-EIC
D104	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D109	72795529	0021721150	LED	SLR-342VCT32
D401	72794488	D2WT011E10	DIODE SILICON	11E1-EIC
D402	72794488	D2WT011E10	DIODE SILICON	11E1-EIC
D403	72794465	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D404	72794489	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D405	72794472	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D406	72797335	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
D407	72794472	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D408	72797302	D2BFRS4FS0	DIODE,SILICON	RS-4FS
D409	72796383	D2BFRU4AM0	DIODE,SILICON	RU-4AM
D410	72794465	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D411	72794472	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D412	72795626	D2WXN40050	DIODE SILICON	1N4005-EIC
D414	75004679	D2LXN40020	DIODE SILICON	1N4002-F
D415	75004679	D2LXN40020	DIODE SILICON	1N4002-F
D416	72794488	D2WT011E10	DIODE SILICON	11E1-EIC
D501	72794473	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D502	72794473	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D503	72794473	D2WTRM11C0	DIODE SILICON	RM11C-EIC

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			DIODES	
D504	72794473	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D505	72783906	D2LXSR2900	DIODE SCHOTTKY	SR290-F
D506	75003522	D2LXN49370	DIODE,FAST RECOVERY	1N4937-F
D507	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D508	72795542	D97U03R91B	DIODE,ZENER	MTZJ3.9B T-77
D509	72794477	D97U01501B	DIODE,ZENER	MTZJ15B T-77
D510	72796383	D2BFRU4AM0	DIODE,SILICON	RU-4AM
D511	75003522	D2LXN49370	DIODE,FAST RECOVERY	1N4937-F
D512	72783906	D2LXSR2900	DIODE SCHOTTKY	SR290-F
D513	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D514	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D515	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D516	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D517	75003522	D2LXN49370	DIODE,FAST RECOVERY	1N4937-F
D519	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D520	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D521	72797335	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
D522	72794484	DOU002720M	DIODE VARISTA	DSS-272M-S00B
D523	72795541	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D524	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D525	72794489	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D526	72795544	D6E027110A	DIODE VARISTA	ENE271D-10A
D527	72797313	D6CE24110A	DIODE VARISTA	ENE241D-10A-Q6
D528	72794489	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	72783906	D2LXSR2900	DIODE SCHOTTKY	SR290-F
D530	72796083	D97U01001B	DIODE,ZENER	MTZJ10B T-77
D531	72794465	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D532	72797325	D97U01101B	DIODE,ZENER	MTZJ11B T-77
D533	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D535	72797338	D97U04R71B	DIODE,ZENER	MTZJ4.7B T-77
D539	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D611	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D612	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D801	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D802	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D803	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D810	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D811	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
D812	72794491	D1VT001330	DIODE,SILICON	1SS133T-77
			ICS	
IC002	72781440	I07F0C0WF0	IC	BA00BC0WFP-E2
IC003	72781440	I07F0C0WF0	IC	BA00BC0WFP-E2
IC004	75006239	I03T057790	IC	LA5779-E
IC101	75006432	I56F07174A	IC	OEC7174A
IC102	72797632	I9UF032450	IC	PST3245NR
IC199	75006528	S30K012E01	MEMORY DATA	AT24C08AN-10SU-2.7
IC401	72783379	I03SD78470	IC	LA7847-E
IC504	72794512	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC601	75006233	I03FC6327B	IC	LA76327M-B-MPB-E
IC702	72795918	I0QF02534V	IC	NJM2534V(TE2)
IC703	72795918	I0QF02534V	IC	NJM2534V(TE2)
IC1001	72795536	I0FSP7822A	IC	AN17822A
IC2401	75006236	ICQK039740	IC	ZR39740HGCF-B0
IC2402	72783776	ICLJ022ET5	IC	HY5DU561622ETP-D43
IC2403	75006237	ICRJ004SU0	IC	AT24C04N-10SU-2.7
IC2405	75007116	S30J01HF01	MEMORY DATA	EN25P16-50HCP
IC2406	72783377	I1FF043450	IC	CS4345-CZZ
IC2420	72797569	I0QF0580V0	IC	NJM4580V(TE1)
			TRANSISTORS	
Q001	72795481	T6RA015300	TRANSISTOR SILICON	2SA1530A-T1
Q002	72795962	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q003	72798324	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
Q005	75006435	T43A938000	FET	2SK393800L
Q006	75006435	T43A938000	FET	2SK393800L
Q007	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q104	72794566	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q105	72794567	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q106	72794566	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q108	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q402	72794561	TCAT03227Y	TRANSISTOR SILICON	KTC3227_Y-AT
Q405	72795477	TDUU024990	TRANSISTOR SILICON	2SD2499(LB0EC1)
Q501	72795476	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q502	72783392	TJXG10NK50	FET	STF10NK50Z
Q503	72795475	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
Q504	72794577	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			TRANSISTORS	
Q505	72795474	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
Q506	72794558	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q507	72794577	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q508	72798324	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
Q509	72794577	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q510	72794558	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q512	72794569	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q514	72795476	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q601	72795962	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q602	72794570	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q603	72794578	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q604	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q605	72795963	TPAAB05001	COMPOUND TRANSISTOR	KRA102SRTK
Q607	72794570	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q608	72794570	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q609	72781797	TDA0016910	TRANSISTOR SILICON	KTD1691Y
Q610	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q611	72794570	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q612	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
⚠Q801	72794573	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠Q802	72794573	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠Q803	72794573	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠Q804	72794574	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠Q805	72794574	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
⚠Q806	72794574	TCA0042170	TRANSISTOR SILICON	KTC4217(O,Y)
Q1001	72794571	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q2420	72783391	TCAA040754	TRANSISTOR SILICON	KTC4075E-Y-RTK/P
Q2421	72783391	TCAA040754	TRANSISTOR SILICON	KTC4075E-Y-RTK/P
			COILS &TRANSFORMERS	
L001	72796506	02167D220K	COIL	22 UH
L004	72796506	02167D220K	COIL	22 UH
L006	72783926	021W0G330M	COIL	33 UH
L007	72796513	02167E220K	COIL	22 UH
L101	72796401	021LA62R2K	COIL	2.2 UH
L402	75006489	022K00058A	COIL,LINEARITY	311015027
L403	72794529	02DK000058	COIL CHOKE	02DK000058
L501	75006436	029T000152	COIL,LINE FILTER	2R0A902F28YNP
L502	72796513	02167E220K	COIL	22 UH
⚠L503	75005675	028T270021	COIL,DEGAUSS	T028R27021
L601	72796571	021LA6220J	COIL	22 UH
L602	72796506	02167D220K	COIL	22 UH
L801	72794539	02167D151K	COIL	150 UH
L2401	72783383	021AS9224J	COIL	0.22 UH
L2421	72783384	0216SDR47J	COIL	0.47 UH
L2422	72783384	0216SDR47J	COIL	0.47 UH
T401	72794690	0450190171	TRANS,HORIZONTAL DRIVE	ETH19Y206AY
⚠T501	75006490	0481350994	TRANSFORMER,SWITCHING	81350994
			JACKS	
J701	72794518	060J431020	RCA JACK	MSP-213V2-432_NI_LF
J702	72783793	063E700012	JACK	S4-25SZ
J703	72783382	060J411045	RCA JACK	MSP-382V-12_NI_FE_LF
J704	72795493	060J411032	RCA JACK	MSP-213V1-652_NI_LF
J705	72794519	060J401104	RCA JACK	MTJ-032-03A-30FE
J706	72794520	060J401106	RCA JACK	MTJ-032-03A-32FE
J707	72794521	060J401105	RCA JACK	MTJ-032-03A-31FE
⚠J801	75004681	066F130026	SOCKET,CATHODE RAY TUBE	ISHD62S
			SWITCHES	
SW101	72794688	0504101T34	SWITCH,TACT	EVQ21505R
SW102	72794688	0504101T34	SWITCH,TACT	EVQ21505R
SW103	72794688	0504101T34	SWITCH,TACT	EVQ21505R
SW104	72794688	0504101T34	SWITCH,TACT	EVQ21505R
SW105	72794688	0504101T34	SWITCH,TACT	EVQ21505R
			VARIABLE RESISTORS	
VR401	72795471	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
VR502	72794701	V1163H4BTC	VOLUME,SEMI FIXED	EVNCYAA03BE4
			P.C.BOARD ASSEMBLIES	
PCB070	75006491	A30K012070	TV MT PCB ASS'Y	CMF094A
PCB110	75006492	A30K012110	CRT PCB ASS'Y	CCF076A
PCBDH0	75006493	A30K012DH0	DIGITAL PCB ASS'Y	CEF242A
			MISCELLANEOUS	
B001	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B002	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B003	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B004	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B005	72794357	024HT03553	CORE,BEADS	W5RH3.5X5X1.0

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
			MISCELLANEOUS	
B401	72794356	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B402	72794356	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B405	72794356	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B501	72794355	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B504	72794357	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B2401	72783357	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2402	72783357	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2403	72783357	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2404	72783357	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2405	72783357	024HC51513	CORE,BEADS	FCM1608KF-151T06
B2406	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2407	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2408	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2409	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2410	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2413	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2414	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2415	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
B2417	72783358	024HC16014	CORE,BEADS	HCB3216KF-601T20
B2418	75006262	024HC13014	CORE,BEADS	HCB3216KF-301T25
B2419	72783358	024HC16014	CORE,BEADS	HCB3216KF-601T20
B2421	72783356	024HC51023	CORE,BEADS	FCM1608KF-102T02
BT001	72783174	141U004016	BATTERY,MANGAN	MNAAA(R03)
BT002	72783174	141U004016	BATTERY,MANGAN	MNAAA(R03)
⚠CD501	75005389	1207415919	CORD AC BUSH	7415919
CD801	72794461	WCL6840038	FLAT CABLE AWM2468 AWG26	5C GRAY 400MM
CD802	75006441	WDL6058038	FLAT CABLE AWM2468 AWG26	6C BLACK 580MM
CD803	72794460	06CH823004	CORD CONNECTOR	CH823004
CD807	72794460	06CH823004	CORD CONNECTOR	CH823004
CP101	72783364	069S280639	CONNECTOR PCB SIDE	A2001WR2-8P
CP401	72795550	069S460089	CORD UX CONNECTOR	A1561WV2-A6P
CP501	72796825	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP502	72796821	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP507	72796825	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP508	72796825	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP509	72796825	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP803	72796816	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP807	72796816	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD1001	75006494	06CH148003	CORD CONNECTOR	CH148003
CP1001	72796793	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
CP2403	75006267	069J2S004A	CONNECTOR PCB SIDE	IMSA-6029B-1-28Z136-PT1
CP801A	72796751	067U005049	WIRE HOLDER	B2013H02-5P
CP801B	72796751	067U005049	WIRE HOLDER	B2013H02-5P
CP802A	72796752	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	72796752	067U006049	WIRE HOLDER	B2013H02-6P
CUS071	72798759	800WFAA006	CUSHION A	
EL0701	72797069	124116281A	EYE LET	XRY16X28BD
EL0702	72797070	124120301A	EYE LET	XRY20X30BD
F501	72794493	081PC6R305	FUSE	51MS063L
⚠FB401	72796672	043227016F	TRANSFORMER,FLYBACK	FJN27A003_M
FH501	72794496	06710T0009	HOLDER,FUSE	EYF-52BCY
FH502	72794496	06710T0009	HOLDER,FUSE	EYF-52BCY
NR2401	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2402	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2403	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2404	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2405	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2406	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2407	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
NR2408	75006268	110P4470M5	R,NETWORK	4D02WGJ0470TCE
NR2409	75006268	110P4150M5	R,NETWORK	4D02WGJ0150TCE
OS101	75002759	077A038003	REMOTE RECEIVER	ROM-V338SY
RY501	72798987	0560V20119	RELAY	ALKS321_M60
⚠SP1001	75006495	070Y435022	SPEAKER	S0509F75
⚠SP1002	75006495	070Y435022	SPEAKER	S0509F75
TH501	72795546	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
TM101	75006444	076N0NH010	TRANSMITTER	RC-NH010
TU001	75006270	0164100022	DIGITAL TUNER	ENG36E03KF
⚠V801	72795547	0981270B01	CRT W/DY	M68LWF088X50
X101	75006273	100GT01215	CRYSTAL	B12000E011
X102	72796062	100DA32R01	CRYSTAL	DT-26
X601	72794704	100DT3R531	CRYSTAL	HC-49/U
X2401	72783400	100GA02502	CRYSTAL	B25000H006

ELECTRICAL REPLACEMENT PARTS LIST

RESISTOR

RC	CARBON RESISTOR

CAPACITORS

CC	CERAMIC CAPACITOR
CE	ALUMI ELECTROLYTIC CAPACITOR
CP	POLYESTER CAPACITOR
CPP	POLYPROPYLENE CAPACITOR
CPL	PLASTIC CAPACITOR
CMP	METAL POLYESTER CAPACITOR
CMPL	METAL PLASTIC CAPACITOR
CMPP	METAL POLYPROPYLENE CAPACITOR

TOSHIBA CORPORATION
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